

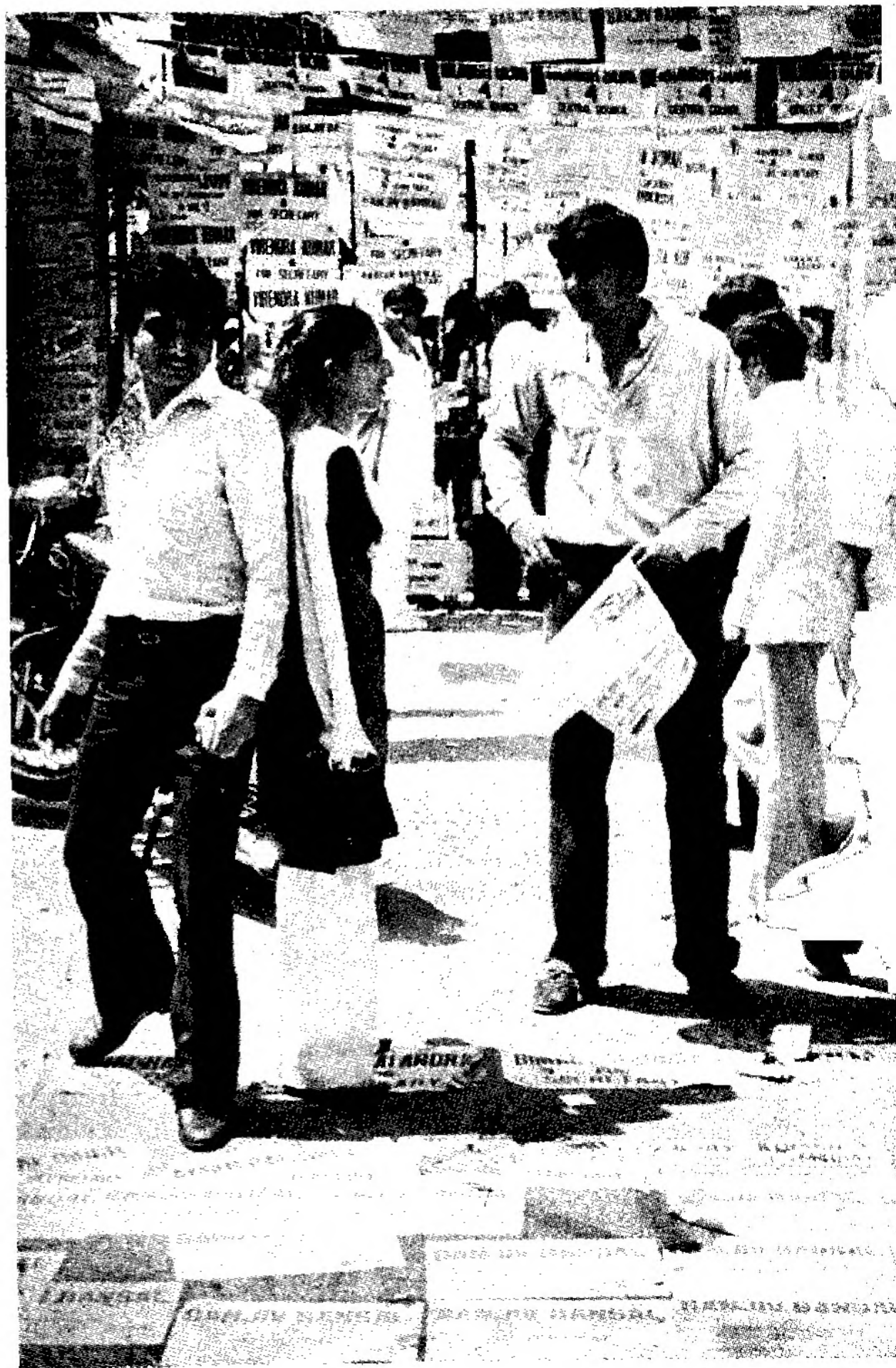
# University News

A FORTNIGHTLY CHRONICLE OF HIGHER EDUCATION & RESEARCH SEPTEMBER 1, 1980

## DUSU ELECTIONS

Poster war at the Delhi  
University Students' Union  
elections held recently.

Courtesy : The Statesman



# CLASSIFIED ADVERTISEMENTS

## GARHWAL UNIVERSITY

SRINAGAR (GARHWAL)

Advertisement No. 8/80

### WANTED

1. **Professor of Economics**—1 post  
(Grade : Rs. 1500-60-1800-100-2000-125-2500).
2. **Reader in Economics**—1 post  
(Grade : Rs. 1200-50-1300-60-1900).
3. **Reader in Zoology**—1 post  
(Specialization Physiology/Ecology)  
(Grade : Rs. 1200-50-1300-60-1900).
4. **Lecturer in Zoology**—2 posts  
(Specialization Fish/Entomology)  
(Grade : Rs. 700-40-1100-50-1600).
5. **Lecturer in Geology**—1 post  
(Specialization Sedimentology/Paleontology)  
(Grade : Rs. 700-40-1100-50-1600).

### Minimum Qualifications for Lecturers

- (A) Doctorate degree or published work of high standard in the subject concerned, and;
  - (B) Consistently good academic record (i.e. the overall record of all assessments throughout the academic career) with First OR high Second class (i.e. with an aggregate of more than 54% marks) Master's Degree in the subject concerned, OR equivalent degree of a foreign University in such subject and should have either an average of 55% of first Degree examination and Intermediate examination or 50% marks in each of the two examinations separately.
2. Where the Selection Committee is of opinion that the research work of a candidate as evidenced either by his thesis or by his published work is of a very high standard, it may relax any of the requirements in the qualifications specified in (B) above.

### For Professor

As per Lecturer, besides he must be eminent scholar in the subject and possess at least ten years experience of teaching P.G. classes and guiding research in the subject.

### For Reader

As per Lecturer, besides he must have five years teaching experience of P.G. classes and guiding research in the subject.

All posts are temporary but likely to be made permanent and are transferable amongst three constituent colleges at Srinagar, Pauri and Tehri.

For all posts candidates having experience of working on local problems will be preferred.

Applications should reach the undersigned on or before **15 September 1980**. Application forms can be had on request from the Office of the Registrar, Garhwal University, Srinagar (Garhwal) by enclosing a self addressed envelope of size 23 cm x 10 cm. with postage stamps worth Rs. 2.85 to cover registration charges.

Applications on prescribed form only,

supported with a Bank Draft on State Bank of India, Srinagar (Garhwal) for Rs. 7.50 in favour of the Registrar, Garhwal University, Srinagar (Garhwal-246174) shall be entertained.

P.L. Chhabra  
REGISTRAR

## ANDHRA PRADESH AGRICULTURAL UNIVERSITY ADMINISTRATIVE OFFICE "RAJENDRANAGAR" HYDERABAD-500030

Advertisement No. 8/80 Dated 8-8-1980

Applications are invited for the posts of :

1. **Associate Directors in the Faculty of Agriculture**—4 posts
2. **Senior Scientist (Cotton)**—1 post
3. **Senior Scientist (Pluses)**—1 post
4. **Professor of Agricultural Economics**—1 post.

Scale of pay for all the above posts: Rs. 1500-60-1800-100-2000-125/2-2500.

Application forms duly filled in should be sent with registration fee of Rs. 5/- so as to reach the Registrar, A.P. Agricultural University, Rajendranagar, Hyderabad-500030 on or before **30-9-1980**.

**Qualifications for the posts of Associate Directors**

### Essential

- (i) Ph.D. degree or any other equivalent degree in any discipline of the Faculty concerned.
- (ii) Experience for a period of not less than ten years in teaching and/or research and/or extension in any discipline of the faculty concerned.

### Desirable

- (i) Other things being equal, preference shall be given to persons with a basic professional degree in the faculty concerned;
- (ii) Published research work to credit.

### Note

For one of the posts of Associate Directors Ph.D. degree in Agronomy is essential:

**Qualifications for the posts of Senior Scientists & Professors :**

### Essential

- (i) Ph.D. degree or any other equivalent degree in the subject concerned.
- (ii) Experience for a period of not less than ten years in teaching and/or Research and/or Extension in the subject concerned.

### Desirable

- (i) Other things being equal, preference shall be given to persons with a basic professional degree in the Faculty concerned.
- (ii) Published research work to credit.

**Note:** For the post of Professor of Agricultural Economics, "Specialisation in Farm Management and Production Economics" is required.

1. The University reserves the right not to fill up the advertised posts.
2. Applicants should appear for interview at their own cost.
3. Selected candidates are liable for transfer to any equivalent posts in teaching, research and extension in the University.
4. Selected candidates will be governed by Andhra Pradesh Agricultural University conditions of service of teachers and other employees.
5. Application forms can be had from the Registrar Andhra Pradesh Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500030 on payment of Rs. 2/- in cash or through postal order **UNCROSSED**.

T. Narayan Reddy  
REGISTRAR

## ANDHRA PRADESH AGRICULTURAL UNIVERSITY ADMINISTRATIVE OFFICE : "RAJENDRANAGAR" HYDERABAD-500030.

Advertisement No. 7/80 Dt. 8-8-1980

Applications are invited for the post of :

### DOCUMENTATION OFFICER

Scale of Pay : Rs. 700-40-1100-50-1600.

Applications forms duly filled in should be sent with Registration fee of Rs. 5/- so as to reach the Registrar, A.P. Agricultural University, Rajendranagar, Hyderabad-500030, on or before **30-9-1980**.

### Qualifications

- (i) First or Second class M.A./M.Sc. and first or higher second class M. Lib. Science.
- (ii) **Experience :** Two years experience in a research Institute or University Library.

**Note:** Ph.D. degree in Library Science or any other subject may be taken as equivalent to two years experience.

1. The post is temporary till **30-11-1984** and is likely to continue.
2. The University reserves the right not to fill up the advertised post.
3. Applicants should appear for interview before the Selection Committee at their own cost.
4. Selected candidates are liable for transfer anywhere in Colleges or Research Stations under the University.
5. Selected candidates will be governed by Andhra Pradesh Agricultural University conditions of service of teachers and other employees.
6. Application forms can be had from the Registrar, A.P. Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500030 on payment of Rs. 2/- in cash or through postal order **UNCROSSED**.

T. Narayan Reddy  
REGISTRAR



# UNIVERSITY NEWS

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*Opinions expressed in the articles  
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not necessarily reflect the policies  
of the Association*

# Semester System —An Appraisal

S. Nagarathnam\*

Changes in education have to be a continuing process to meet the needs of a changing society. The objectives of education, especially higher education, have undergone a radical change with the advent of industrialisation throughout the world. Education has to train the required manpower in many fields for an industrial society. It has become a part of the industrial process. Consequently, efficiency in terms of needed quality and quantity is anticipated.

Practically all the universities in the country have adopted the semester system during the last two decades. This implies the division of an academic year into two portions, each of about 18 weeks duration so that the subjects could be covered in an integrated way during each of the portions as was done previously during a full year. Along with this division of work the much-needed examination reform with continuous evaluation in the form of internal assessment was also introduced. Thus not only there is the division of the year into two or more self contained instructional periods, but an in-built evaluation process through internal assessment. It is the latter reform that has caused the abandoning of the semester system recently in some of the universities. However, the reorganisation of courses and contents adopted with the semester system has not caused any administrative or academic problems.

Any radical reform should not be forced down the throat from the top of the hierarchy in the universities to be adopted by teachers. The process should be initiated at the student-teacher level, debated and discussed and moved up the hierarchy to be ultimately adopted as a programme to be followed. This process might seem slow but such a democratic process helps towards adoption of a new system into the existing set up with success. Many pitfalls in a well intentioned reform could have been avoided with wider acceptance before implementation.

The external examination system ensures uniformity, anonymity and impartiality and has fewer administrative problems. But, as rightly criticised, the separation of teaching from evaluation robs the teacher of the challenge and joy of teaching, deprives him of the opportunity for a midcourse correction, innovation and creative teaching. Undue emphasis on a single examination at the end creates malpractices and leads to an ultimate lowering of standards. There could be no two opinions on the advantages of internal assessment.

But in the Indian context some section of teachers, and most of the students, do not prefer internal assessment. Complete internal assessment increases the workload of the teachers and they have to take greater responsibility as they are accountable for their wards. Fears about angry or violent responses from students make teachers reluctant to go the whole hog with internal assessment especially in arts colleges. This has compelled some of the universities either to water down the importance of internal assessment or abandon it totally.

Semesterisation including total internal assessment has not been successful in this country. There is the need therefore to develop local models keeping in view local resources, traditions and objectives. The objectives of the new system should be to induce improved study habits among the students, to provide greater autonomy for

(Continued on page 477)

# Higher Education and the University

Samuel Mathai\*

There has been a great deal of interest in recent years in higher education in India, and books and articles have been written without a critical, historical knowledge of the origins and development of modern university education. It may therefore be of interest to take a historical survey of the beginnings of the modern European University and the establishment of western type of universities in India.

The concept of 'Higher Education' as something distinct from primary and secondary education is comparatively recent. In some places the term 'tertiary education' is used, indicating that it is the third stage of education, following the primary and the secondary stages. Almost everywhere in the world to-day formal education is organised in these three stages, although their precise limits may vary from country to country. There are also refinements of the system: there may be arrangements for 'pre-school' education (nursery schools, kindergarten, etc.); the primary stage may be divided into lower primary and upper primary; the secondary stage may be divided into middle school and high school, or lower secondary and higher secondary. It is usual now to plan educational arrangements with reference to age groups: thus in India the primary stage is supposed to be from the age of six to eleven, and the secondary (according to whether the school system is one of ten years, eleven years or twelve years) covers the age group of eleven to sixteen or seventeen or eighteen. But nowhere in India are these groupings strictly adhered to, and there are cases of students who complete secondary education (in a ten year school system) at the age of thirteen or fourteen. Generally speaking it may be said that higher education begins at the end of high school or secondary education; and for entry into higher education a school leaving certificate (on the results of a public examination) is usually required. In most parts of the civilized world a student is at least sixteen years old when he completes high school in the United States he is usually over seventeen; in the United Kingdom and many of the commonwealth countries he is eighteen; and in some European countries where the first University degree is a doctorate, he may be nineteen, or more.

Although there is an apparent similarity in the division of the educational 'ladder' into three broad stages in most parts of the world, the content and level of education varies from country to country. This is due not only to the age at which the average student is expected to complete each stage, but also to sociological, economic and political factors that effect education. Thus a student who completes his secondary education from a High School in India is ordinarily not only younger than a student

passing out of a High School in England or America, or from a *Lycee* in France or a *Gymnasium* in Germany, but also is intellectually less mature. If 'higher education' is what is attempted and achieved at a university (or college) by way of teaching and learning, obviously university standards will vary from country to country though there might be close resemblances in form and structure of the curriculum and in organisational pattern.

In spite of great differences that exist in the idea of the university in different parts of the world, the name—French *universite* German *universitat* Italian *universita*, Spanish *universidad*—is now more or less universal: names like *visvavidyalaya* (Hindi) and *sarvakalasala* (Malayalam) are translations of the word 'University'. The beginnings of the European university (which in its British, French or German version has provided the model for universities everywhere in the modern world) go back to the 10th or 11th century. The earliest known establishments of the kind that came to be known as universities were in Italy (at Salerno, Bologna, Padua and other centres). It appears that the first stage in the development of these institutions was when the Chancellor of a Cathedral (or some other authority) gave permission to teachers to open schools outside the cathedral school. Then a *license* to teach—which was granted only after a formal examination—authorised a master (Latin: *magister*) to teach at any centre of education. Later still, a license from the Pope or the Emperor or a King was necessary to establish a community of scholars. The term first used for such a community of scholars was *studium* or *studium generale*. The latter term was applied to the larger or more distinguished *studia*—i.e. places resorted to by scholars from all parts, like those at Paris or Oxford. The word *universitas* originally meant only a society or guild or something like a union (in the modern sense) within the *studium*. There could be more than one 'university' or 'society' in a *studium* and the *universitas* could be one of 'masters' or of 'scholars' or of both—*universitas magistrorum* or *universitas scholarium* or *universitas magistrorum et scholarium*. In course of time the word began to be used by itself in the exclusive and specialised sense of a community of teachers and scholars whose corporate existence had been recognised and sanctioned by civil or ecclesiastical authority.

By the end of the 15th century there were some seventy universities in Europe. From Italy they had gradually spread to France, England, Germany, Scotland, Scandinavia, Spain and Central Europe. Already these universities had acquired distinct characteristics influenced by the political and social situation of the country or region in which they were established. But there was a recognizable similarity among them, even when some of them (as in

\*Former Vice-Chancellor of Kerala University.



Spain) were founded by kings and not by the Pope. This was because recognition as *studia generalia* depended on the license granted by the institution being accepted as the 'right to teach anywhere.' It was the Pope who granted such a generally recognised right—the *jus ubique docendi*.

New forces came into play with the Reformation and the Counter-Reformation, and the rise of nationalism in Europe. With the decay of Latin as the common language of culture and learning, the universities became increasingly national. The mediaeval 'universality' was largely lost. But with the growth of science in the 19th century there was a revival of contact among the universities. The spread of the university of America, to the countries of the British empire and to other countries that imported European ideas or came under European influence (Japan, China) necessitated new adaptations of the original university 'idea.' But although patterns vary a good deal there is a 'family resemblance' among all of them.

Although in the course of the centuries the university has undergone much adaptation and innovation, and the aims and purposes of different kinds of universities vary considerably the university everywhere in the world has now become the chief agency of higher education and professional training. A university degree or diploma is the symbol of superior education and a required qualification for many forms of employment. This is a fact that links all the universities and is a common inheritance from the first mediaeval European university. It will be recalled that the beginnings of the university included the granting of a licence to teach. The original 'degree' of the university is that of Master of Arts (which in French is *licence-es-lettres*). 'Master' and 'Doctor' both meant teacher, and the Master's degree and the doctorate were considered equivalent. But from the 19th century a rationalisation of the various 'grades' of university education took place. In the English-speaking countries a first degree of Bachelor of Arts was granted, and the Master's degree was granted some years later either after an examination or by efflux of time. Doctorate degrees were given in law, medicine, divinity and other 'professional' courses. In Germany, however, after the reorganisation of the universities and schools (after the defeat in the battle of Jena, 1806, and the treaty of Tilsit, 1807) following the philosopher Fichte's ardent appeal—'If Germany is to be saved, the national must be taken as the unit of social organisation. Germany must realize its character and destiny, and through a conscious control of education it must liberate all its potentialities—moral, intellectual, physical, vocational—for national service', he declared—the doctorate degree became the hall mark of higher education, whether at a university or at a Technische Hochschule (Technical College or University). The German system greatly influenced American educational practice in the 19th century, and although the B.A. and M.A. degrees were still awarded, the Ph.D. degree became the ultimate degree. It was not till 1917 that Oxford instituted

the Ph.D. (D. Phil) degree, mainly to accommodate American students who could no longer travel to Germany because of the War.

It could thus be said that the common distinguishing mark of universities is their power to grant degree. Degrees may be awarded on the basis of a test—which may be in the form of a written examination or an oral (*viva voce*) examination or a dissertation or thesis embodying the results of special study and research—or *honoris causa* that is, for distinction in some field of public activity or eminence in academic, scientific, or cultural fields. The power to grant degrees is by convention or law the exclusive privilege of universities or other institutions recognised as equivalent to universities. In India, the University Grants Commission Act of 1956 has expressly laid down that a degree (which is defined as one of the degrees listed by the Commission) may be awarded only by a university or by an institution deemed to be a University or empowered by an Act of Parliament for such a purpose.

A university, then, is a corporation of teachers and students which is empowered by some competent authority to provide facilities for teaching and learning, to conduct tests to determine the award of degrees, and to grant academic degrees. When the first universities began in Europe there was only a minimal organisation of the life of the community of teachers and students. Since the university was a development from the Christian Church in Europe its first members were *clerici* (modern 'clergy': from which the word 'clerk', in the sense of 'scholar' is derived) who had certain privileges and immunities. The head of a university was a chancellor (a word borrowed from the Roman law courts) who was a bishop or acted in the bishop's name, and had general charge of the teaching, exercised control over members of the university, and conferred degrees. Later, even when the office of chancellor existed, a Rector was appointed as the real head, and the chancellor's office became largely formal.

The early *studia* were 'local' institutions and the student body, even when they were lay (not clergy) made their own residential and feeding arrangements. But as some of the *studia* became famous and students and teachers from distant places came to these centres of learning, and as their numbers increased, student guilds were formed to enable students from different places of origin (e.g., France, England, Spain, Italy) to secure by combination certain rights and privileges that they could not obtain as citizens. These *societates scholarium* were the first 'universities' within the *studia generalia* and were also known as 'nations'. The term 'university' had no implication of 'universality' of learning. When the word was adopted as the name for the *studium generale*, the only possible suggestion of 'universality' was a geographical one. Indian 'translations' of the word—*visvavidyalaya*, *sarvakalasala*—are based on a misconception of the origin of the word. But it is now generally thought that a university properly so called should have a wide range of academic facilities.

It appears that quite early in the history of the universities, in places like Bologna, the masters formed themselves into organizations called *collegia* chiefly for the conferment of degrees. This is the origin of the word college. The students who went to Bologna were of mature years, and were mostly men already holding some office in church or state. Private houses for residence of students existed from the beginning, but later a house for the more needy students (*a domus*) with a fund for their maintenance was founded. Colleges as units of a university or as single institutions of higher education in later times derive from both such teachers' organisations and residential arrangements for students. In Paris, Oxford and Cambridge scholars found it safer and more convenient to rent a house in which several of them could live together than to live in separate apartments. These 'houses of scholars' were sometimes gifts of rich benefactors or monastic foundations. Gradually these student 'hostels' became colleges. Thus Merton College in Oxford was founded by Walter de Merton, Chancellor of England and Bishop of Rochester as the 'House of Scholars of Merton' in 1264. The 'collegiate system' of British and Commonwealth universities has grown out of such early foundations.

As universities were established in other parts of the world the term 'college' was applied to institutions which provided teaching at the undergraduate level, and either granted their own B.A. degree or the degree of the university of which they were affiliated. Higher Education in the British empire and the Commonwealth developed by a process of university colleges being first set up and these colleges being later converted into universities. In India a few colleges were established by the East India Company before the first universities were created in 1857; a number of private institutions also had been set up before that date. Clear demarcations between what we now call secondary education and higher education had not been made: the universities were therefore conceived as regulating and examining bodies, and the colleges were expected to prepare students for the examinations of the university through a two or three year period of teaching. The first college established in the United States was Harvard College (1636). This has now become Harvard University. A number of other colleges (including the 'Land Grant Colleges') were established in that country since then, and most of these have become universities. But in America the name 'college' does not mean an affiliated institution: a college can have the same scope and functions as a university, and grant its own degrees. But usually, though not necessarily, a college is a four-year undergraduate institution of higher education which admits students from secondary schools and which grants a bachelor's degree. Such a college usually emphasizes a liberal or general education rather than specialised technical or vocational education. A college could also be a separate degree granting professional institution or a constituent professional department of a university, e.g. medical colleges, agricultural colleges,

teacher-training colleges, law colleges, engineering colleges, etc. Sometimes the term college is used for student residence halls: at Oxford and Cambridge the colleges are primarily residential houses for students with a few 'fellows' and a principal or warden or master at the head.

When modern university education began in India (in 1857, with the establishment of the universities of Calcutta, Bombay and Madras) there were a few institutions, established a few years earlier, that were called colleges. Among these were: a Sanskrit college at Benares, founded in 1792 by Jonathan Grant; Hindu College, Calcutta, 1817 (which was the first 'English' college in India) established on the initiative of Raja Ram Mohan Roy and others; a medical college in Calcutta; Elphinstone College, Bombay. But the term college did not have a specific meaning, as an educational system with clearly marked stages had not yet come into existence. But with the establishment of the universities a number of 'English' schools that were already in existence began to prepare older students for the examinations of the universities, and many of these schools were soon affiliated to the universities as colleges. There are nearly five thousand colleges (Arts, Science, Commerce, Engineering, Medicine, Teacher Training, Law, Agriculture) in India to-day; and the term college now indicates that the institution provides education or training leading to university degrees. But a few secondary schools of the 'public school' type (like Mayo College, Ajmer; Rajkumar College, Rajkot) were also called colleges.

The affiliated college in India (whether a 'government' college or a 'private' college) is more or less autonomous as far as its internal administration is concerned but has no freedom to devise its own curriculum and set its own standards. This is historically the consequence of the Indian universities having started as purely examining bodies and the colleges originally functioning as institutions 'coaching' students for the examinations of the universities. But some of the 'better' colleges took their function as *educational*, as distinct from merely *teaching* bodies seriously and provided character training and intellectual stimulus of a higher order. The rapid growth in the number of colleges in the last fifty years or so, and the effects of social, economic and political changes in the country, have adversely affected the quality of teaching and the general moral and cultural atmosphere of the colleges. Even the limited freedom and internal autonomy that the colleges formerly enjoyed have in practice been greatly attenuated. In the normal evolutionary process the colleges (or at least the older and more reputed ones) should have grown into independent, degree-granting institutions, but this has not happened.

Although a college is generally either a degree-giving institution or an institution providing education of university standard and related to a university, the term is also used for a large number of institutions (especially in the United States and in Japan) which provide post-secondary education



in a variety of subjects for two or three years outside the university system. Such institutions are usually referred to as Junior Colleges. In America some Junior Colleges have what are known as 'transfer courses', i.e., courses that enable students thereafter to join a regular college or university. But generally speaking Junior Colleges provide training in vocational courses or in technical subjects.

Many of the polytechnics in India may be compared with some of the Junior Colleges in Japan though the latter usually specialise in one subject or a group of closely related subjects (e.g., photography, horticulture, fashion—which includes dress making and a certain amount of textile technology); whereas a polytechnic, as the name implies, provides training in three or four technical courses. Junior colleges and polytechnics usually require that the candidates should have completed high school, and for that reason could be said to come within the scope of higher education. But they are not so designated.

The fact appears to be that for post-secondary education to become higher education properly so called it must be broad-based and must be more than just training for a job or an office. There is always an assumption that higher education should include some study of the humanities and a good acquaintance with the essentials of the cultural milieu in which that education is imparted and received. But this is an area of ambiguity. Although the beginning of the present century, or at least after the first world war, there has been a fairly clear articulation of the educational system in most countries of the world, and, as has been stated above, the division of the educational ladder into primary, secondary and tertiary stages is widely recognised, there is still uncertainty about the dividing line between secondary and tertiary or higher education. In the four-year liberal arts colleges of America a variety of curricular experiments are tried, based on different views of the function of such an institution. In India it was felt quite early in the history of university education that there was need for an 'intermediate' course to link the high school courses with the degree courses. In some parts of the country the intermediate course was taken out of the purview of the university and put under Boards of Intermediate Education specially created for the purpose. From 1944, after the Sergeant Committee had reported on post-war re-organisation of education in India, most universities abolished the Intermediate course and split the two years between the Secondary stage (calling it Higher Secondary) and the University (setting up a three-year degree course). This experiment has not been entirely satisfactory: in many places instead of the Higher Secondary a 'Pre-university course' was devised. More recently in Kerala the one-year PUC has been substituted with a two-year 'Pre-degree course'; this is now accepted as the normal pattern nationally.

For a variety of reasons (the low standards of Indian High Schools, the comparatively early age at which a student can matriculate, and sociological

and other factors that militate against the raising of standards) the first degree stage in Indian universities rarely succeeds in being anything more than a continuation of High School both in terms of levels of knowledge and methods of teaching.

In the second half of the 19th century when higher education was carried to other parts of the world outside Europe, the university idea had to undergo many changes and adaptations to fit into the new situations and to meet new needs. At that time the European universities themselves were faced with new problems. There was the problems of bringing science within the scope of university studies. Ideas concerning the role of the university in training people to meet the needs of an industrial society, and the university as an institution that must be in the forefront of the advancement of knowledge through research, were being debated by leaders of the nations. In America in the 17th and 18th centuries many colleges and universities modelled on the English universities had been established; they were primarily concerned with a religious culture and the training of an elite. But the needs of a pioneering agricultural society required radically new forms of education. The Landgrant Colleges (many of which have now become full-fledged universities) were established to provide for the study of agricultural and veterinary sciences and to establish stations for carrying out research in these and related fields.

The problems of adaptation in a country of ancient civilization and a non-European culture were many and complex. In India there were several questions that needed to be considered. What was the 'purpose' of bringing a European institution into this country? The university in India had to help to revive the ancient learning of the land and at the same time make available to the people the new European science. It had to train the men who would work in the new professions that it would help to create—law, medicine, engineering, teaching, public administration. The university would at least indirectly be the channel of political ideas and be the means of establishing western political institutions in India. The university would help to create a modern, educated *elite* who would set the standards of a new national culture. Not all these purposes were clearly spelt out by the founders of the first universities in India, but a careful study of the documents relating to the discussion of the question of introducing 'English' education into India reveals that thoughts like these did occur to the Englishmen and Indians involved in the discussion.

During the last fifty years, and especially after the second world war, ideas about the tasks of education have undergone great change. The traditional views about the nature and purpose of the university still have validity, but the university has now to respond to pressures and demands that arise from the contemporary political, economic and sociological developments in the world; and the 'explosion of knowledge' and the growth of technology have begun to affect educational aims and methods.

A classic expression of the 'idea of the university' was given by Jawaharlal Nehru addressing the Allahabad University in 1947: "A university stands for humanism, for tolerance, for reason, for progress, for the adventure of ideas and for the search for truth. It stands for the onward march of the human race towards ever higher objectives. If the universities discharge their duty adequately, then it is well with the nation and the people ... A vast responsibility therefore rests on our universities and educational institutions and those who guide their destinies. They have to keep their lights burning and must not stray from the right path even when passion convulses the multitude and blinds many amongst those whose duty it is to set an example to others."

The University Education Commission (Radhakrishnan Commission) said: "We have now a wider conception of the duties and responsibilities of universities. They have to provide leadership in politics and administration, the professions, industry and commerce.....They must enable the country to attain, in as short a time as possible, freedom from want, disease and ignorance by the application and development of science and technical knowledge."

The Education Commission (Kothari Commission) reporting in 1966 has the following statement about the tasks of universities :

"In board terms, the functions of universities in the modern world may be said to be:

- to seek and cultivate new knowledge, to engage vigorously and fearlessly in the pursuit of truth, and to interpret old knowledge and beliefs in the light of new needs and discoveries;
- to provide the right kind of leadership in all walks of life, to identify gifted youth and help them to develop their potential to the full by cultivating physical fitness, developing the powers of the mind and cultivating right interests, attitudes and moral and intellectual values;
- to provide society with competent men and women trained in agriculture, arts, medicine, science and technology and various other professions, who will also be cultivated individuals, imbued with a sense of social purpose ;
- to strive to promote equality and social justice and to reduce social and cultural differences through diffusion of education; and
- to foster in the teachers and students and through them in society generally, the attitudes and values needed for developing the 'good life' in individuals and society".

A Committee appointed by the University Grants Commission to report on "Standards of University Education" (1965) said in its report that in addition to two aims "applicable to all universities in the world", viz "the transmission of existing knowledge to new generations" and "the advancement of the frontiers of knowledge by research", the Indian university should have among its objectives the following:

- ensuring that 'every student who passes out of

an Indian university takes with him some understanding of India's cultural heritage, its past achievements and triumphs'....

- developing 'a critical approach to the values and schools of thought which have come down to us...'
- making 'an intensive study of problems that beset its neighbourhood for the purpose of finding practical remedies for them....'
- exercising 'a wholesome influence on the thinking and planning activities of Government and other agencies....'
- "the development of a national outlook overriding parochial, religious and linguistic considerations..."
- "to be internationally minded" bearing in mind that "in the pursuit of truth and excellence to which all universities are committed, there is neither east nor west, north nor south".

The traditional view of the function of a university as found in the older English universities was that it should produce persons with a high sense of duty and reasonableness, who would be able "to fill any post with credit, and to master any subject with facility". The duty of a university is instruction rather than research, and to train the mind rather than to diffuse useful knowledge. This was in contrast with the direction that German universities had taken. The German influence did not manifest itself in England till much later; but it affected the development of higher education in America and other countries. There was a great proliferation of 'subjects' of study. New areas of knowledge like anthropology economics, sociology, political science and psychology developed; science itself branched into a number of 'disciplines.' Technical education, which in the past had been only the learning of a 'trade' now grew into engineering and technology and applied science. The range of higher education now includes the humanities, the social sciences, the biological sciences, the physical sciences, astronomy and outer space.

In developing countries like India the problems of higher education now include keeping pace with the advanced countries in this great leap forward of knowledge and the rapid changes in methods and techniques of learning and investigation. Research in most areas now requires the support of an advanced technology. The higher reaches of learning need to be based on sound foundations of intellectual and scientific training at the undergraduate level.

If we use an architectural metaphor, higher education is a three-storey edifice, the ground floor is the undergraduate stage; the second storey is the postgraduate stage and the top storey is where advanced learning and research and real 'search for truth' are pursued. The ground floor is open to large numbers, and the many who enter will come with different motives and varied capacities. They will all have opportunities for acquiring a broad-based education, and to learn to think clearly and logically and to develop respect for truth. But not all of them will go on to the next stage : 'many are

(Continued on page 483)



# Role of Libraries in a Developing Society

Kalpna Dasgupta\*

Libraries and Librarians have come a long way since the days of chained books and closed stacks. We are in an era of scientific development at its peak and a consequent information explosion. This resulted in developing countries being more effective in performing basic activities of locating, acquiring, organising and disseminating available information. This is also due to wide ranging technical development in every field of activity and an overall consciousness about the utility of information for development.

The situation in developing countries in general and in India in particular is nowhere near this because like any other field of activity there is a lack of technological development, in sufficient funds and traditional attitudes which resist any change. Today's needs, therefore, would be to involve the people and make them aware of the developments around and thereby make the changes in a developing society. Knowledge of information will have to be shared effectively through various channels of communication and libraries and librarians will have to play a vital role in doing so.

## Information needs

The contribution of information to development cannot be doubted any longer but its quantification is extremely difficult in different developing societies. Every developing society has its priorities and, therefore, it is even more difficult to define the optimum levels or resources which should be devoted to the information input at local, regional or national level. Developing countries require information systems of their own which suit their needs and capacities. The emphasis should be on knowledge most needed for social and economic development.

Access to precise and reliable information of different types at the right time, to the right person in a conveniently usable form minimises the wastage of resources. And also the well organised information system helps people at various levels :

- to stimulate thought and action by injection of and interaction with, other people's ideas, knowledge, experience and achievements;
- to promote continuous awareness of what others are doing so that individual workers (or groups) may know of developments in their own special fields, and in wider fields such as discipline, or technology;
- to diminish the probability of unwitting duplication of work and to save time and effort;
- to provide introductory and background information for work in unfamiliar fields;

—to provide specific information and data needed for work in hand; and

—to meet specific requirements (from "Handbook for information systems and services" by Pauline Atherton).

It is the communication agents who have set the wheels of change into motion. The developing countries have had long traditions of oral culture which had to give in gradually to organised media systems of communication because of user increase, distance and increase in output of knowledge.

Communication of information should embrace all relevant means of communication including non-documentary forms such as—oral, documentary (printed and cyclostyled), audio-visual (exhibitions, films, radio and television) media and traditional media.

The different channels vary in effectiveness and in the range of audience reached e.g. oral communication (face-to-face) may be most effective in a small audience or in a cultural group audience situation. Whereas in communication through electronic and other such media the message can reach more effectively to the far away audiences.

## Libraries in communication process

Libraries or organised collections of information exist to serve as an access point. They facilitate the use of information that represents recorded knowledge for the purpose of learning. The library often has to take the role of a teacher. The concept of libraries as "Knowledge Resource Centre" is fast coming up in the developed countries. With the application of the new media technologies, it is possible to give all types of information to the user. There are mechanisms which can identify what information is wanted or needed, what information in what forms will be most useful for using and reproducing. They can also determine how the user can interact with the information. New methods of storing and organising information can be created to suit the needs of the user.

Today when we speak the 'book' we are more or less using the generic idea of the book. Likewise when we make the reference to the user of information in libraries, it has a broader meaning. Because the user may not just get information from one unit of the library, but one unit may interact with another unit to find a solution to a problem. Besides providing stored information, the library may also serve as a communication facilitator by taking the information from the original form and delivering it in the manner which facilitates use.

\*Senior Librarian, Institute of Mass Communication, New Delhi.

Expansion of the communication spectrum in libraries from print to audio-visual and other means of communication will certainly bring about changes in library services and also the impact of libraries as transmitters of information through different channels of communication.

The variety of media, other than print which may be made available are motion pictures (films, videotapes, video-discs), television, satellite telecommunication, audio-recording (phonograph discs, audio tape recording) and computers.

According to Wilbur Schramm, "It is predictable that the next stage in the technology of Mass Communication will be concerned with the needs of the receiver to help him separate out what he needs from the flow of information, call or recall it for use when he needs it, and establish special channels to and from other users with whom he needs to share."

### **Educators at different levels**

When we are in doubt whether the library and the librarian are parts of the overall communication process or not, this view should give us a lead that libraries have to play a vital role in the entire communication process of the developing society.

In fulfilling the task of involving the people at different levels in economic and social change, libraries have to change their traditional role as store houses of books and other reading material. At all stages of economic and cultural construction the Soviet library has actively participated in the solution of the main tasks that the country faced: wiping out illiteracy, raising the level of professional knowledge of the workers, peasantry, etc. Therefore, it is possible for the librarian to be actively involved at different levels of development. They can play a vital role in educating, informing, and in entertaining the people. While in a developed society people are informed and alert, in a developing society due to various historical, political, economic and social reasons the majority are not well informed even about the solutions to their immediate problems. Therefore, their participation in different development programmes cannot be automatic. They have to be drawn into and made to participate and get involved in different programmes for change. This may be done through dissemination of correct and current information.

In most of the developing societies literacy levels are very low. Therefore, document centred library services alone cannot be effective. The modern concept of information centre or resource centre will have to replace the idea of the traditional libraries because the services should be largely information centred—preparing, supplying and explaining information to literates, neo-literates and illiterates.

In the present Indian conditions if libraries have to prove their worth as locators, organisers and disseminators of information to the right persons, at the right time in the right form they should adapt to the changed set up. In India there are developmental programmes of various types and of different

importance in the socio-economic spectrum of the country e.g. family planning, adult education, co-operative development, etc. For making all these programmes successful the right information should reach the users at different levels in the right form and at the right time. The main targets are :

1. The motivators (those who work in the field);
  2. The receivers and utilisers of the programme.
- Effective dissemination of information at both levels will depend largely on proper communication of worthwhile information. As mentioned earlier libraries will have to assume the proportion of a resource centre or an information centre.

In the present infrastructure the public library system and the state information centres together may prove quite workable if a combination of the two can be evolved. As per available statistics 15 states have state public libraries, and five union territories have central public libraries. There are 401 districts and libraries are 291 at the district level. There are 5,027 blocks, and out of them 1,798 have libraries, out of 5,75,936 villages only 41,828 have a library each. Coming to government information centres, each state has a chain of information centres at the state and district levels as well as at sub-division levels. Many of them also have a central Reference Library with books, clipping section, indexing facilities and an audio-visual unit.

Is not there a way by which there may be proper co-ordination between these so that the resources can be shared and used for these two types of clientele at all levels ?

### **Helping information flow**

It is at this juncture that the librarian should play an active role. Librarians and information officers of the state central library and state information centre will have to co-ordinate the activities of the lower level units of both these organisations to have access to both externally and internally generated information. The librarians and information officers at different levels should be aware of the problems and need of the area in question, the composition and life style of the community that has to be served. This is necessary to build up the right information sources both documentary and non-documentary. There has to be good rapport between the librarian and information officer on the one side and the clientele on the other.

As mentioned earlier there will be mainly two types of clientele, the motivators and the people in general. The first category will have to be made aware of the latest developments in their particular field of activity. This could be done by librarians and information officers at their level. The externally generated information will flow from the state level downwards. This can be done by :

- Sending mimeographed information bulletins about externally generated information, specially of other areas of the country or abroad.
- Studies done by different organisations may be highlighted.



—Periodical newsletters containing experience of village/district/state levels in that particular area of activity.

—An up-to-date directory of personnel in the area handling the job. This will serve the purpose of good referral systems.

—Occasional meeting of the librarian and information officer with the motivators, extension workers and publicity officers.

The information flow here has to be two way because the librarian has to keep the workers aware of the last development and they in turn will keep the librarian aware of the internally generated information at their level. This information has to flow back upwards to the state level so that as awareness is created among the policy makers as to the effectiveness of the programme.

To cater for the information needs of the next category i.e. the possible beneficiaries of the programme, the librarian has to change further and assume the role of a communicator.

The following information has to be communicated :

1. Need for the programme.
2. Methods of utilising the programme.
3. Benefits of the programme.

The channels of communication could be :

- (a) Interpersonal i.e. talking to people.
- (b) Visuals—posters, photo, charts, slides, etc.

The visuals should carry the message in a form which can be understood by all. The level of

understanding of the people has to be taken into consideration. The placement of the visuals would be at the often visited places e.g. post office, market place, school, village panchayat, etc.

(c) Short films, television programmes;

(d) Fairs and exhibitions;

(e) Mailing simple awareness services to neo-literates. The thrill of getting something to read may prove effective communication.

In reaching the people directly specially at the village level the librarian has to be a co-worker of the publicity officer or extension worker. The panchayat house which is frequented by the people could be changed into a communication centre. With the television reaching many of our villages through the SITE this could be a centre of activities. Newspaper reading, radio listening, television watching could be organised along with the village level extension worker. Audio-visuals such as slides, need not be used only for entertainment but also for getting across information.

If all these sound utopian today it will not be so tomorrow. In the days to come in developing societies development programmes will continue with full impetus. All information disseminating organisations have to gear up themselves to the needs of the people at large. If librarians are to be of any use to the semiliterates and illiterates their role and activities should change. At all levels there should be an attitudinal change. We have to give up the elitist slant to education and try to reach the people at different levels. □

[Courtesy : *The Communicator*]

## Semester System—An Appraisal

(Continued from page 469)

the teachers to plan the course work and train the students and to rescue the students from the tenuous results of one final examination.

Division of the academic year into two semesters with partial internal assessment along with an external examination at the end of each semester has been tried. Among the affiliated institutions, there has been a tendency to give disproportionately high marks in internal assessment to boost up the results, as the results are declared with the addition of internal assessment and external examination marks. This has caused a lowering of standards, though students seem to go along with the system. But having external examination in all subjects at the end of each semester has caused considerable inconveniences in arranging for prolonged periods of examinations. In addition there are always delays in declaring the results of the external examinations. Many a time the results of the examinations of the previous semesters are not available before the deadline for filling application for the next semester's examinations !

Students complain not infrequently that internal evaluation is more abused than used. The marks are inflated to show better results and some meritorious students get frustrated. The contrived semester is sometimes a cover for the inefficiency and lapses

on the part of teachers. As it has been observed "far from forging a link between the teacher and the taught and establishing a rapport which would be conducive to pupil growth, internal assessment alienated the student community further from the teachers".

The apparent failure of the semester system with full internal assessment is not due to the defects in the system but to a lack of imagination towards adopting the system to the Indian condition.

Academics and administrators are not involved in trying this forward-looking educational reform. The internal assessment can be adopted in stages with a built in mechanism to prevent its abuse by the teachers. If necessary, outside examiners may be appointed to examine the validity of the internal assessment of teachers. There should be provision for students to seek remedy through an Appeals Committee which should consist of academics from outside the institution. Teacher Associations should take an active interest in this vital educational reform and find ways and means to make it work. We cannot overlook the fact that internal evaluation has been a success in autonomous institutions. If greater autonomy can help colleges towards successful implementation of these educational reforms, the universities should come forward to loosen their hold on the affiliated colleges. □

[Courtesy : *The Hindu*]

## **Gorakhpur plans jubilee celebrations**

The silver jubilee of Gorakhpur University which came into existence in 1957 will be celebrated from February 1 to December 31, 1982. At a meeting of the University Court held recently it was decided to constitute a committee for the purpose with Dr S.N.M. Tripathi, founder member of the university, as the convener. Other members of the committee are ; Mahant Avidya Nath, Sir Surendra Singh Majithia, Dr Vidya Newas Mishra, Mr K.P. Singh, Prof. S.P. Nagendra, Prof. S.N. Mathur, Prof. L.B. Tripathi, Mr Rai Rajeshwari Prasad, Mr Surendra Prasad Srivastava and Mr Purushottam Das.

Dr Tripathi has a proposal to collect Rs 35 lakhs from the public. Besides, efforts would also be made to obtain the maximum

the jubilee year it was proposed to organise academic lectures, dramas, kavi sammelan and other cultural programmes.

## **Four Punjab colleges selected for IAS training**

The Punjab Education Minister, Mr. Harcharan Singh Ajnala, while laying the foundation stone of a Rs. 5-lakh new building at the Guru Nanak Dev University, said in Amritsar that the government had selected four colleges which will prepare students with a good academic record drawn from all colleges of the State for specialised training to equip them for competitive examinations for all-India services such as IAS, IFS and IPS. This step has been taken as the Punjab's share in such activities was declining over the years. Besides, he had

of affiliated colleges and universities in Tamil Nadu. It has been provided that refusal to undertake the work assigned by the university or college would result in forfeiture of pay and allowances of the person concerned for a period of three months from the date on which the examinations were scheduled to commence and that appropriate action would also be taken for dereliction to duty apart from the action that may be taken under the Act.

## **First Asian congress of fluid mechanics at Bangalore**

The Indian Institute of Science and National Aeronautical Laboratory are jointly hosting the First Asian Congress of Fluid Mechanics during 8-13 December 1980 at Bangalore. The Congress is being organised under the direction of the International Scientific Committee under the Chairmanship of Prof. H. Sato (Japan) and the National Organising Committee under the Chairmanship of Prof. S. Dhawan. Nearly three hundred delegates are expected to participate in this Congress, which is the first of its kind. The scientific programme includes invited general lectures and special lectures and contributed papers. The purpose of the Congress is to provide a forum for exchange of ideas among fluid-dynamicists in Asia, and for presentation and discussion of work done in fluid mechanics in Asia as well as elsewhere.

Papers are expected to be presented in all branches of fluid mechanics, describing basic research (theoretical or experimental) as well as applications. In particular, the following areas have been included:

- \* Viscous flows including boundary layers
- \* Turbulence
- \* Wave phenomena, vortices
- \* Gas dynamics and combustion
- \* Heat and mass transfer
- \* Multi-phase flows
- \* Computational methods
- \* Experimental methods

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# **CAMPUS NEWS**

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possible amount of grants from the University Grants Commission and the State Government. He said that though the university, at present, has got a Faculty of Agriculture with some affiliated colleges teaching the subject, there is no such department in the university itself. Hence it was proposed to establish an agriculture college by the university. The sports activities in the university were also greatly handicapped for want of a stadium which is proposed to be constructed soon. A women's college will also be started with graduate and postgraduate courses exclusively for women students. Stressing the necessity of constructing more hostels, Dr. Tripathi said that at present there were about 7,000 students in the residential wing of the university. But the total number of students who could be accommodated in the existing hostels is around 700. More hostels would be constructed to provide lodging facilities. During

a scheme under consideration to improve the quality of education and to introduce more and more job-oriented courses to diversify education so as to send such of the students who may not make a grade in academic studies to the technical side.

Dr. K.S. Gill, Vice-Chancellor of the University, while welcoming the Minister said that the university needed buildings for the Registrar's office, sports complex, houses for university teachers and other members of the staff, extension of women's hostel, regional centre of the university at Jullundur. All these are estimated to cost Rs 70 lakhs to the university.

## **Invigilation made a statutory obligation**

A Bill is being introduced in the Legislative Assembly of Tamil Nadu to make invigilation at examinations part of the duties of the teachers and members of the non-teaching staff.



\* Technological applications, including turbomachinery, flow-induced vibrations, etc.

Registration fee for the conference is US \$50, or for participants in India is Rs. 400/-. The fee will be reduced to US \$40, or for participants in India to Rs. 320/-, if it is received before October 15, 1980.

Funds for partial support of a small number of participants are available. Applications should be addressed to the ACFM Secretariat National Aeronautical Laboratory, Bangalore-560017.

## Learning through films

The present generation is fortunate enough to be exposed to the media of Audio-Visual for learning and as everyone is aware, the film has ability to enhance the learning process and convey the subject concept beyond the limitations of the printed word.

PDR COMMUNICATIONS, 342 Kalbadevi, Bombay-400002, has enhanced the opportunity to avail additional films to your Audio Visual Library of Programme with Educational films on Language, Medical Science, Agriculture, Animal Husbandry and Management. These authentic and up-to-date films are produced by world renowned U.S. Producers and marketed in India by PDR COMMUNICATIONS.

The films can enter your campus in both Super 8 mm and 16 mm format which are in sound and colour to suit your Institutions.

## Research group for the study of Deccan Volcanism

The Deccan Trap which occupies a vast area of 500,000 sq. km. in Central and Western India, is the largest flood basalt pile in the world. Hence, a study of how, when, in what sequence and by what processes the Deccan Trap came into existence is of crucial importance in the understanding of the fundamental earth processes.

The results of such a study

can have considerable economic significance for India. For instance, the data on the structure, morphology, sequence and petrochemistry etc. of the lava flows could help in the utilisation of the ground-water potential in the drought-prone Deccan Trap areas of Maharashtra, M.P. & Gujarat, and in the location and design of engineering structures for the optimal utilisation of the waters of the Narmada River which largely flows through the Deccan Trap Country.

At the time of the IUGC General Assembly, Canberra, Dec. 1979, the International Association of Volcanology and the Chemistry of the Earth's Interior (IAVCEI) which is a constituent Association of IUGC, decided to set up an international group to promote, coordinate & collate researches on Deccan Volcanism, because of its global scientific importance. Prof. U. Aswathanarayana, Head of the Centre of Advanced Study in Geology, University of Saugar, Sagar, M.P. has been chosen the Leader of the Working Group on Deccan Volcanism. The other members of the Group are : Prof. A. McBirney (USA), Prof. M. Manghanani (USA), Dr D.A. Swanson (USA), Dr T.L. Wright (USA), Dr K.G. Cox (England), Prof. G.P.L. Walker (New Zealand), Prof. A.I.A.I' Mukhamedov (USSR), Prof. V. V. Zolotukhin (USSR), Prof. S. Aramaki (Japan), Prof. M. Kono (Japan), Prof. Gonzales-Ferran (Chile), Prof. C. Brooks (Canada), Dr. K.V. Subbarao (India), Mr S.S. Deshmukh (India). It is proposed to set up sub-groups in the following areas:

(i) Geologic and tectonic setting and morphology (including hot spots and intraplate Volcanism), (ii) Petrology-Mineralogy (including Theoretical & Experimental Petrology), (iii) Geochemistry (incl. trace element and isotopic geochemistry, geochronology and petrogenetic models), (iv) Ore deposits and geothermal energy (v) Planetary basalt comparisons (vi) Physics and chemistry of the Upper Mantle (including association

with carbonatites and kimberlites), (vii) Geophysical studies (including Deep Seismic Sounding) and (viii) Other aspects.

At the kind suggestion of Prof. S.A. Fedotov, President of IAVCEI, it has been decided to effect comparison of Deccan Traps with other flood basalt piles in the World. Apart from promoting the exchange of scientists in this area, it is proposed to establish in the University of Saugar a Data Centre of Deccan Traps (and other flood eruptions) by bringing into existence a reference collection of publications, samples, thin sections, Cores, maps, data sheets, etc. The international programme on Deccan Volcanism is being modelled after the International Indian Ocean Expedition (IIOE) and Monsoon Experiment (MONEX).

## Delhi scraps grading system

The Academic Council of Delhi University has decided to abolish the grading system from the current academic session. The decision will affect the post-graduate students and was taken on the recommendations of the Examination Reforms Committee. The grading system was introduced three years ago and was not popular with the students. The recommendation of the law faculty to have a month's vacation in December instead of autumn and winter vacations each of 15 days was also accepted by the Council.

## Council against autonomy for colleges

The Academic Council of Bangalore University at its last meeting held in Bangalore did not approve the suggestion of the Government to grant autonomy to affiliated colleges. Mr. T.R. Jayaraman, Vice-Chancellor of the university said that it was not opportune to grant autonomy either administrative or academic to affiliated colleges. When the university itself did not enjoy autonomy in its relation with the Government how could it grant autonomy to the affiliated colleges. But he was in favour of granting autonomy to a few selected colleges.

# Agriculture

## Lab-to-land programme extended in Cuttack

Encouraged by a 300 per cent increase in yield under the CSIR sponsored Lab-to-Land programme last year, the Central Rice Research Institute (CRRI), Cuttack has extended the programme for two years.

CRRI Director H.K. Pande said under the original programme Bageswarpur, Bhatipur, Totapara, Prabhakar Nadua and Sultannagar villages comprising 300 small and marginal farmers' families in the Pipi block of Puri district were adopted.

Stress was laid on those belonging to the Scheduled Castes and on landless peasants. Those having land above two hectares were excluded.

The technology that was used in the Lab-to Land programme launched on the occasion of CSIR's Golden Jubilee, was the same as that used in the CRRI's earlier "Operation Rice Research Project" that embraced 1,200 acres in ten villages at Kandarpur in Cuttack Sadar block, where the farmers were guided in effective pest control measures.

The earlier project included proper water management facilitating even three crops a year, selection of seed varieties according to land situation, timely planting to ensure maximum plant population, timely weeding and application of fertilizer, it also included fish culture in collaboration with the Central Inland Fisheries Research Station, Cuttack.

This project was later extended to include another 1,000 acres at Nakhra near Bhubaneswar where the main emphasis was on doubling the yield through scientific distribution of the Puri Canal water through prefabricated cement water channels. The idea here was only to guide the farmers without giving them any inputs.

## Litchi centre for HPAU

A litchi and mango research station is being opened by Himachal Pradesh Agricultural University at Nagrota, about 18 km from Dharamsala. It is proposed to plant 800 mother plants of litchi in an area of about two acres during the next four years. A nursery of litchi and mango plants will also be developed. A sum of Rs 50,000 has been sanctioned for cultivation of litchi and its allied research projects.

Dr R.P. Awasthi, Associate Professor, Department of Horticulture and Fruit Technology at Palampur campus feels that the litchi cultivation would be of great potential in areas situated at a height of 1,000 to 3,000 feet above sea level. Such areas in Kangra district lying between Shahpur in Kangra sub-division to Chadiar in Palampur sub-division, would be an ideal site for such cultivation. At present it is estimated that about 100 acres are under litchi cultivation in various parts of Kangra district. The growers often face the problem of proper irrigation facilities and availability of grafted material for growing new plants. A litchi plant starts bearing fruit after about five years. Its average yield varies from one quintal to two quintals.

## PAU demands more flexibility

The Board of Management of Punjab Agricultural University has recommended to the State Government to provide complete autonomy to reappropriate funds from one scheme to another within the overall allocations under the plan and non-plan heads. The Board at its recent meeting held in Ludhiana has further recommended that the block grant for the university should be fixed after making a proper assessment of its requirements of funds for a period of five years with an annual increase of 4 to 5% over the previous grant. In a memorandum to the State Government the PAU authorities have submitted that a few agricultural univer-

sities are given block grants for a period of five years and have the freedom of reappropriating the funds according to their needs. Such universities are Andhra Pradesh Agricultural University, Hyderabad, University of Agricultural Sciences, Bangalore and Tamil Nadu Agricultural University, Coimbatore.

The university did not experience any financial difficulty earlier as the State Government had been releasing full grants but for some time the Government had not been liberal and the overall grants have been cut quite often particularly under the non-plan schemes. The Board has therefore recommended that the State Government should provide additional grants during the current financial year to meet this gap.

## Scientific equipment for HAU

The Alexander von Humboldt Foundation of the Federal Republic of Germany has made a grant of valuable equipment to the Haryana Agricultural University, Hissar. The equipment includes a spectrophotometer and a gas liquid chromatograph with accessories. The total value of the equipment is Rs 3,80,000 (DM 88,000).

The gift of equipment is in recognition of the research work done by Dr. S.K. Arora, who had been to Munich as a scholar of the Alexander von Humboldt Foundation.

Dr C. Niemoeller, Cultural Counsellor in the Embassy of the Federal Republic of Germany, New Delhi, officially handed over the equipment on behalf of the Foundation to Dr P.S. Lamba, Vice-Chancellor of the University.

Dr. Maharaj Singh, Director of Research, welcomed the guests. He pointed out that the gift not only demonstrated the interest of the Alexander von Humboldt Foundation in supporting the research of its former scholars through the contribution of essential equipment but also underlined the efforts of the Federal Republic of Germany in strengthening cooperation between scientific institutions of the two countries.



# Conferences

## New thrust to R&D in Science, Technology Plan

The two-day conference of scientists and technologists, convened by the Government, concluded after identifying the Research and Development areas which required thrust and delineating the broad approach to a Science and Technology Plan for 1980-85.

According to Mr Vijay N. Patil, Union Deputy Minister for Science and Technology, the new areas of thrust will include modernisation and strengthening of the education system, control of communicable diseases, new sources of energy and bio-technology.

Mr. Patil and Dr. M.G.K. Menon, Secretary to the Department of Science and Technology said that a broad Plan frame for science and technology would be drawn up on the basis of the discussions at the conference. After this was approved by the National Development Council, detailed planning would be undertaken. The idea was to ensure that science and technology effort formed an integral part of the overall Plan and meshed with the development process. In this context, the Prime Minister's statement at the inaugural function was reassuring and positive.

Dr Menon said the discussions covered a wide spectrum of activities, and the consensus was that the Indian scientists could show results if clear-cut tasks were set for them. New areas, which required thrust were identified.

One of the conclusions at the conference was that the education system which was the source of scientific manpower, should be strengthened. It was felt that the university laboratories, which got little support, should be strengthened so that they would have effective link

with the national laboratories and production system.

The UGC Vice-Chairman, Dr B. Ramachandra Rao, said that it was proposed to finance selected universities to improve their academic levels. If once at least 50 per cent of the universities were improved. They would be able to interact effectively in basic and applied research.

Another priority area identified related to studies on coal. With the hike in oil prices, it was felt that the possibilities of greater use of coal to replace oil should be explored. According to Dr G.S. Siddhu, Director of the Regional Research Laboratory, Hyderabad, the R and D effort in this field would be directed towards the use of coal as alternative feedstock for the chemical industry now based on oil; improving the energy of coal by removing the ash content; and transport of coal in different forms like slurry and gas to re-

duce the burden on the railways. Technology might have to be imported for these, but it would be coupled with efforts to absorb it.

A third area, identified for major thrust, related to bio-technology. According to Dr. V. Ramalingaswami, Director-General of ICMR, modern biology and its application would be accorded priority in the Science and Technology Plan. He listed immunology, genetic engineering and use of bio-mass as alternative sources of energy which offered great promise in changing the face of industrial activities. Large-scale application of these techniques was proposed and, as a back-up, the study of biology would be strengthened in universities and IITs.

In the field of agriculture, discussions brought out the need for a strategy to raise farm output by minimising the use of energy and fertilizer which had become costly. It was felt that studies on microbial techniques should be given priority.

Dr Menon said the question of reducing the import of technology also figured, and various factors, that came in the way of greater utilisation of indigenous technology, were examined.

## Crisis in Indian Science

A group discussion on "Crisis in Indian Science" was held recently at which Mr. P.N. Haksar, former Chairman of the National Committee on Science and Technology and Deputy Chairman of the Planning Commission initiated the discussion.

At the very outset Mr Haksar stated that the subject matter under discussion was of extraordinary complexity and that one may not be able to reach any worth-while conclusions in the course of one session. There was a vast amount of literature dealing with the growth of Science in a given society at a given time. However, discussions on the subject in India have not, to his knowledge, been worth while. It

seemed to him that the growth of Science in India required an in-depth analysis of our social structure, our culture, our tradition, our modes of thought as well as the general stimulus given to Science by the specific economic and other conditions prevailing in our country.

The crisis in Science such as we are witnessing in our country today was not peculiarly Indian phenomenon. From time to time voices have been raised against Science even in the western world. In the middle thirties of this century, doubts about the efficacy of Science and scientific method were raised in Great Britain and there has been regression elsewhere too.

Today, in the United States itself, voices have been raised against Science. There are people going round canvassing support for revision of textbooks demanding that the act of creation be given as much space in school text-books as the case for Darwinian Evolution.

It seemed to the speaker that whenever the dynamics of Science and of society were not in consonance a conflict tended to arise. It was rather like the grafting of a tissue which, sometimes, a body did not accept. In India, it seemed that the crisis in Science was intimately related to the crisis in Indian society itself. Our society is not animated by a pervasive spirit of enquiry which is a necessary, though not sufficient condition, for growth of Science. While an outstanding scientist is a genetic phenomenon, his growth and flowering and the permeation of his ideas throughout society were social phenomena.

Mr Haksar contrasted the spirit which animated a man like C.V. Raman or Meghnath Saha or S.N. Bose to the prevailing spirit in post independence era. Raman and Saha and others of his generation accepted the challenge of the West. With tremendous sense of national pride they proclaimed that we Indian "blackies" could produce as good a Science as the white races. They were not interested in the current urges for scientific tourism or for a desire to publish these paper in foreign journals. So we have a phenomenon where we have growth of the scientific community which is not animated by a sense of challenge. This is further aggravated our scientific community's collective lack of confidence that they would find among themselves their peers to assess their work and to stimulate discussion and interaction. Our Science academics are decorative. The fact that the Government itself has become a consumer of large number of scientists has had a deleterious effect on mutual inter-action between our scientists. A lack of defined challenge posed by our society

and Government to our scientists make the community lacking the purpose. Also, our political processes feed on backward moulds of thought which has the effect of drastically curtailing the spirit of enquiry, respect for facts and respect for rationality. We still have not been able to liberate our minds from the ancient doctrines on human spirit and human existence and its evolution. We are overwhelmingly concerned with personal salvation which under material conditions prevailing at present is degenerating into a most reckless and immoral accumulation of wealth. Another major cause of crisis in Indian Science is the meagre resources devoted to its nurturing so that we even have in the former Chairman of the National Committee on Science and Technology, Dr Atma Ram, a person who said that India did not need Science so much as it needed technology which could be bought. Some visiting Western Scientists have objected to our pursuit of basic sciences as wasteful expenditure.

It is not realised that in every area of our national endeavour we need basic Sciences of the highest order. Take the simple question of health programme for millions of our people. In this area alone we need basic researches and not more technology. In another area, of doing something with our renewal resources, we again need basic Sciences. And yet Biological Sciences are perhaps the most neglected in our country. In Physics, those who qualify today have hardly any market. University Science and Mathematics specially are decaying despite brave attempts who maintain certain centres of excellence. What can these centres do if talented scientists prefer to go in for commerce or management or even for civil services.

While we talk of self-reliance we have not spelt out this concept in terms of policies, programmes, resources, etc. Today, we are more dependent on foreign aid than ever before. Even in areas of relevant research we have more collaborations than

before and many of these collaborations reflect not our national interests but the national interest of the dominant countries imposing collaboration on us, especially in the area of health.

There is crisis also in technology policy and programme. In the early years great deal of technology and industry grew under the slogan of "Import Substitution" but now we do not know precisely what are the aims and objects of our technology policy. Witness the chaotic conditions prevailing in the area of tractor and power tiller technologies, diesel engines, drugs and pharmaceuticals, cosmetics, etc.

We developed competence and capacity for designing fertiliser plants and yet we still continue to give turn-key contracts to foreigners. We set up a tremendously competent organisation for designing steel plants and yet, the fact remains that after 30 years of independence our designers and engineers have not been given chance to design a single steel plant fabricated in India. We go on importing the same and similar technology repeatedly. There is no national import of technology and its further development, whether in private or public sector, with proper support of local R and D institutions.

While we talk a great deal about planning, there has been up-to-date no purposive linkage between Science, R & D and planned development. That is why we have not merely a general crisis in Science but very painful crisis within the established institutions both of Science and of Technology. The entire field of atomic energy was in crisis. There was crisis similarly in the whole area of space research. Apart from having a coloured television we do not know the directions in which space research should grow. The same applies to a very large area of Science and Technology in India.

The current economic stagnation and inflation will bring about further distortions both in the growth of Science and in Technology.



## UGC grants for short-term courses

The University Grants Commission has decided to provide financial assistance to the universities for introduction of short-term diploma courses to increase the chances of employment for students and to give them confidence in self-employment and entrepreneurship. The short term courses suggested in such areas are : transport management, accountancy, office management, electronics and instrument repairing. The Commission's scheme of restructuring of courses has two important aspects. One, to make the degree course more relevant to the rural environment and to the development needs of the community. Two, to link education with field work, practical experience and productivity. The scheme is meant for all colleges and not merely for those located in the rural and backward areas. In order to enable a good number of colleges to participate in this scheme, the stipulation regarding the minimum enrolment and the minimum number of teachers as laid down by the Commission in respect of the development of affiliated colleges will not be insisted upon while examining proposals for restructuring courses. Under the scheme about 200 colleges have been identified initially to try out the new combinations of courses. The colleges have been selected in the vicinity of agricultural universities and Krishi Vigyan Kendras so that these institutions can help the colleges in drawing up the syllabi for the new subjects with a practical rural orientation.

The Commission has also issued guidelines to the universities for the reorganisation of courses at the undergraduate stage following 10 years of schooling. The universities have been requested to keep certain considerations in view—updating,

diversification, flexibility, social responsibility, interdisciplinary approach and practical operation of courses. The universities have also been asked to provide in their curriculum a set of foundation courses under which one may introduce such themes as Indian history and culture, the history of freedom struggle, the concepts and processes of development, population education, the cultures of Asia and Africa, Gandhian thought and science and society.

## Courses in space sciences to be encouraged

A Coordination Committee between the University Grants Commission and the Indian Space Research Organisation has been set up for joint cooperative programmes in universities and academic institutions on space research. Besides selecting areas of research, the committee set up in 1976 would also recommend appropriate teaching and training programmes.

Over a period of four years a total of 137 projects have been funded by the Commission and Space Research Organisation. With a commitment of over 164 crores the implementation of these projects is expected to lead to the development of a reasonably good academic base

in some major areas of space research. With India joining the exclusive five-member Space Club by launching a 35 kg technology satellite Rohini-4 it has been decided to give special importance to courses in space. Courses in space sciences have been started by a number of universities within the existing departments of Physics. The University Grants Commission, however, has told these universities that the courses should be organised on an all-India basis to attract the best students. At least half the students admitted should be from universities outside the State concerned. Provision has also been made for students of these courses to take up project work in one of the ISRO centres at Ahmedabad, Thumba or Sriharikota. Space research has emerged as an important area of University Grants Commission activity with nearly 60 projects currently under way on its various aspects. These cover space sciences themselves besides the technology involved and their application.

Grants for space research by the Commission have increased many times in recent years. Presently, these grants are in the neighbourhood of Rs. 50 lakhs with more than a dozen universities involved in research.

## Higher Education and the University

*(Continued from page 474)*

called but few are chosen.' Only those who show real capacity for higher learning and have a desire to specialise in one area of knowledge will take up Post-graduate studies. Then, a highly selected small number from among those who have reached the second storey will ascent to the top floor where the 'frontiers of knowledge' are reached.

But it must always be remembered that education in its fullest meaning is much more than knowledge or scholarship. Education is 'bringing up' or 'leading forth': it is the attainment of fullness—what Shakespeare called "ripeness". Knowledge is a very important element of ripeness, but only an element. True education must include development of the body and training of the affections and emotions as well as the development of mental faculties and the acquisition of learning. Higher education must be thought of as a process of acquiring that fullness or ripeness which enables and qualifies one to become a "master" or "doctor" who can then help to educate others. It is a life-long process. □

## UGC lays stress on women education

The University Grants Commission has urged the universities that any plan for the development of women's education will have to take into account the imbalances and variations in regional and sectional attitude towards women's education. These factors have contributed to the increase in the inequality between men and women in the sphere of education. The Commission has asked the universities that women should be given opportunities for vocational training and employment. It has reminded the universities and the State Governments that the recommendations of the Committee on the Status of Women should be implemented with particular reference to higher educational opportunities to women at the university level. More and more women are taking to university education in the country. The percentage of enrolment of women in the universities has progressively increased from 20 in 1969 to 25.8 in 1976-77. The number of women's colleges has also gone up by nearly 25 per cent.

### More colleges seek autonomy

The scheme of autonomous colleges launched by the University Grants Commission has received much attention during recent years. A large number of applications have been received from the colleges for grant of autonomous status. Most of the new applications have come from Tamil Nadu which even accounts for 12 of the 13 autonomous colleges in the country. The only autonomous college outside Tamil Nadu is the Birla Institute of Technology at Ranchi. A decision to grant autonomous status to more colleges would be taken after evaluating the performance of the existing ones.

### UGC assistance to colleges with SC students

The University Grants Com-

mission provides assistance for development of colleges. In respect of buildings, the assistance is 50 per cent and the matching contribution by the management is 50 per cent. However, in the case of colleges in backward areas that have a scheduled caste/scheduled tribe student strength of one-third of the total enrolment or 100 whichever is less will be eligible for assistance under the general development scheme and the matching contribution would only be one-third. This information was given by Shri B. Shankaranand, Minister for Education, Health and Social Welfare at the second meeting of the Consultative-Committee for the Ministry of Education and

Culture held recently. He added that such assistance has been discontinued for other colleges at present.

A member suggested that the Indian National Commission for Cooperation with UNESCO had not met in 1979 and thus it early date. He also suggested should be reconstituted at an that the new Committee must meet at least once before the end of this year. The Minister assured the Committee that he will look into the matter.

It was suggested that the next meeting of the Consultative Committee should be held in South India. Hyderabad was suggested as one of the possible venues. The Minister promised to consult the State Government.

## Foreign News

### Pakistan centre for South Asian studies

Pakistan's only Centre for South Asian Studies in Lahore is in the process of reorganisation. The Centre at the Punjab University would now collect data and do research on military, political, scientific, technological, social and cultural developments in the region with particular emphasis on India. There are plans to transform the centre into a premier research institution of Pakistan with financial help from the University Grants Commission. Dr Rafiq Ahmad, an Economist and Pro-Vice-Chancellor of the University heads the centre. He plans to make available to scholars information sheets about scientific, educational, trade, governmental, political, journalistic and military aspects of India. Top priority has been given to the establishment of an excellent library on South Asia and there is a plan to bring out a South Asian journal of international standing. Acquisition of books, journals and newspapers concerning South Asia would be

the main problem for the centre. At present there is no import of books and periodicals from India.

The Centre for South Asian Studies at Lahore was set up six years ago by an act of Parliament. Centres for Central Asian studies and European studies were then established at Peshawar and Karachi universities respectively.

### Britain welcomes foreign students

The British Government has clarified that it welcomes overseas students, including those financed under the aid programme, at British technical colleges and universities. Britain will continue to make substantial contributions through its aid programme to the education and training needs of developing countries.

From the technical co-operation funds within the aid programme allocated to schemes such as the Commonwealth Scholarship and Fellowship Plan it should be possible to maintain a substantial level of training in the U.K. as part of Britain's overall contribution to the education and training needs of developing countries. The support available from the aid programme will continue to be



used for helping carefully selected students and trainees on courses which enable them to make an early contribution to the development of their countries on their return.

With regard to the questions about the increase in student fees, Mr Mark Carlisle, Secretary of State for Education and

Science, said that while he saw no prospect of a general exemption from fees for Commonwealth students, he had informed the Secretary-General that he would be very ready to consider proposals and alternative strategies for funding which Commonwealth countries might have to suggest.

## AWARDS

### INSA awards

Fifteen young scientists have been selected by the Indian National Science Academy for science academy medals for the year 1980. The awards were instituted in 1974 to give recognition to the scientific achievements of scientists below the age of 35 years. Following are the recipients : Dr Prabha Agrawal, University of Indore; Dr D.V. Amfa, National Botanical Research Institute, Lucknow; Mr R. Balasubramaniam, Tata Institute of Fundamental Research, Bombay; Dr M.A. Barma, Tata Institute of Fundamental Research, Bombay; Mr D.K. Chakrabarti, Banaras Hindu University, Varanasi; Dr S.S. Mehtra, Mahatma Phule Krishi Vidyapith, Rahuri Distt, Ahmednagar; Mr Madhav V. Nori, Tata Institute of Fundamental Research, Bombay; Dr D. Pandey, Banaras Hindu University, Varanasi; Dr N. Pattabhiraman, Indian Institute of Science, Bangalore; Dr Sudhir Paul, All India Institute of Medical Sciences, Ansari Nagar, New Delhi; Dr S.S. Pillai, Calcutta Medical Research Institute; Mr E.S.P. Reddy, Regional Research Laboratory, Hyderabad; Dr N. Sathyamurthy, Indian Institute of Technology, Kanpur; Dr A.K. Saxena, University of Roorkee and Mr V.N. Vasudev, Dept. of Mines and Geology, Bangalore.

### VKRV awards

The Prof. V.K.R.V. Rao awards for 1978 have gone to Prof.

Sukhamay Chakravarti for Economics, Dr Satish Saberwal for Sociology and the late Dr J.P. Ambannavar for Demography. The three prizes of Rs. 5,000/- each instituted in 1977 by the Institute for Social and Economic Change are awarded annually to the social scientists below the age of 45 who through original research have contributed to the advancement of knowledge. The prizes are awarded in the field of Economics annually and in Sociology, Demography, Human Geography, Public Administration, Education, Political Science, Psychology, History and Linguistics, by rotation.

### Hari Om Ashram awards

Dr S.C. Gupta, closely associated with the control and guiding system of the SLV-3, is among the four distinguished scientists who will receive the "Shri Hari Om Ashram Prerit Dr Vikram Sarabhai Research Awards" for 1979.

The other three scientists to receive this award are: Prof A.B. Bharattacharya of the Indian Institute of Technology, Delhi for his contribution in the field of electronics and telecommunications, Dr K.S. Krishnaswamy of the Tata Institute of Fundamental Research for his pioneering work in the field of planetary and space sciences and Dr S.K. Ghosh, Director of the Meteorological Office, Delhi, for his research on a number of complex phenomena related to the Indian summer monsoon and for prediction of storm surges which cause severe damage to life and property.

(Continued from page 496)

#### 1. (a) Scale of Pay

Rs. 700-40-1100-50-1600, with D.A., H.R.A., C.C.A., etc. as per University Rules.

#### (b) Age Limit

Not more than 30 years as on 1-9-80. The age limit can be relaxed in case of inservice candidates of J.N.T. University. For S.C., S.T. & B.C. candidates the age limit is relaxable by 5 years.

#### (c) Qualifications

A First Class Masters Degree in the concerned subject with consistently good academic record.

#### (d) Specialisations Required

1. **Civil Engineering** : (i) Soil Mechanical & Foundation Engineering. 2. Transportation Engineering 3. Building Technology 4. Structural Engineering/Survey and Photogrammetry.

2. **Electrical Engg.** : Instrumentation or real time control of power systems or power systems

3. **Mechanical Engg.** : Machine Design, Foundry Instrumentation.

4. **Electronics and Communication Engineering** : Micro-waves, Communication systems, Advanced Electronics, Computer hardware, Computer Engineering, Radar and Micro-wave Engineering, Solid State Devices and Circuits, Active network synthesis, Digital Electronics.

Candidates interested may apply on plain paper to the Registrar, Jawaharlal Nehru Technological University, Humayunnagar, Hyderabad-500028, enclosing a Demand Draft for Rs. 15/- (Rupees 3/- in case of S.C. & S.T. candidates) in favour of Registrar, J.N.T. University Hyderabad, payable at any of the scheduled banks at Hyderabad along with the application form so as to reach him on or before 12-9-1980 furnishing the following information.

Post applied for, Name in full (Block Letters), postal address to which communications should be sent, date of birth and age, whether belonging to S.C./S.T./B.C., Educational qualifications, Experience (teaching and non-teaching), any other information, Signature of the candidate.

Note : **REGISTRAR**

Persons who are employed should submit their applications through their employer.

Persons claiming to belong to S.C./S.T./B.C. should produce the Community Certificate from the appropriate authorities.

Late applications will not be entertained.

### GAUHATI UNIVERSITY

Corrigendum to the Advertisement

No. 10 of 1980

Item No. 3. Reader/ S. S. O (For Mechanical Section) One post. (5th Plan)

Item No. 4: Reader/SS.O. (For Electronics Section) One post. (5th Plan) are withdrawn for the present.

# SPORTS

## Asiad preparations to be completed by 1982

The work connected with the hosting of the Asian Games is expected to be completed by May, 1982. The Government has already appointed a steering committee and a coordination committee for this purpose. The coordination committee which met in New Delhi recently has fixed deadlines for the various agencies to complete the work. Three more sub-committees have been constituted under the steering committee. The one under the Secretary of Electronics Department will be dealing with the electronics equipments needed for the conduct of the games and will be submitting its report by September 15. The sub-committee under the charge of Defence Secretary will be responsible for the opening and closing ceremonies of the games and the one under the Tourism and Civil Aviation Secretary has been entrusted with the job of controlling the tourist flow and making satisfactory arrangements for the visitors in respect of accommodation and internal travel.

Six other sub-committees formed earlier are under the Secretariat of the Ministries of Finance, Works & Housing, Transport, Communication, Law and Health. The coordination committee will be working under the Prime Minister's secretariat and will involve in its deliberations Ministers and Secretaries not included in the steering committee if the need arose.

The Chairman of the steering committee, Mr. B. Shankaranand, has expressed a desire to have arrangements comparable to the Olympic standards as far as possible, especially in respect of electronic equipment. Instructions have also been given to the Railways to give top priority in the movement of cement and

steel once the construction gets started. Likewise the Ministries concerned with steel and cement have also been directed to ensure prompt supply. The steering and coordination committees are at present in touch with the Indian Olympic Association directly on technical matters.

The halls at the Pragati Maidan will be utilised for conducting the games. Table tennis will be held in the Hall of Industries and badminton in the Hall of Nations. The 25,000-seat capacity stadium being planned by the Delhi Development Authority will be venue of Volleyball. Basketball will be held at the existing NDMC Indoor Stadium at Talkatora Gardens. The NDMC will construct a new covered swimming pool for aquatic competition. While the men's hockey is to be played at the National Stadium on artificial surface, the plans so far indicate that the women's hockey tournament would be held on grass at the Shivaji stadium. Except for the semi-finals and final, the football matches would be held at the Feroze Shah Kotla ground. The semi-final and finals will be played at the new 75,000-capacity stadium which is to be the venue for athletics as well as opening and closing ceremonies.

Rai which will be holding six disciplines will have a new indoor stadium for gymnastics and weightlifting, a new velodrome for cycling and a new range for shooting. Wrestling and archery will be held at the existing facilities at Rai after necessary renovations.

## NSS programmes at Delhi

The NSS has ushered in a new phase of expansion and growth, both qualitatively and quantitatively, in the year 1979-80. In figures and numbers the students' enrolment touched the target of 13,000 under the Regular Programme covering Delhi University, Jamia Millia Islamia, Indian Institute of Technology, All India Institute of Medical Sciences and Jawaharlal Nehru University and nearly

4000 campers for the special camps during the year. Enrolment of female volunteers had been fairly high and constituted 35% of the total enrolment. Similarly the women volunteers who attended the special camps, during the year, constituted one third of the total number of campers.

Coming to the quality of work, varied and numerous areas were brought under the programme during the year. In fact, the much awaited slogan of 'university comes to community' was now more a reality than a mere verbal jargon.

To highlight some of the activities, it is noteworthy that 'Hospital Service' was the most popular service and the most sought after programme among the colleges. Nearly all the hospitals of the metropolis were brought under the sway of NSS for overall patient-care, propagation of health-care, providing guidance to new patients, helping authorities in preparing health-charts and other records etc.

Blood Donation and Traffic Control projects were yet another haul-marks in the long array of service. More than 1000 student volunteers from different colleges of Delhi University donated blood to the 'Indian Red Cross Society'.

That year was marked by the International Year for Children. Therefore, NSS had its share towards the welfare and happiness of the children. Nearly 35 colleges of Delhi University and All India Institute of Medical Sciences and Jamia Millia Islamia got hold of children in their respective locality and gave them educational, recreational, medical and ethical boost-up to groom them into good and responsible individuals. Under this scheme small children were given coaching in collaboration with their school teachers. Some drop-outs were enlisted and parents were contacted to educate them on significance of education in the present context.

Women were not left untrapped. Five women colleges, in collaboration with the Central Welfare Board and the State



Welfare Board, had organized courses for women in their respective adopted complexes. This included tailoring, knitting, dool-making, beautician trades and textile designing. More than 700 women were benefitted.

Further NSS volunteers were trained in Rescue Relief Techniques, in Civil Defence and in the art of nursing (for women) in collaboration with the Joint Assistance Consultancy. Legal-Aid-Clinics were opened and small saving was boosted up. Mobile creches were opened for children of the working-class-women. Institutes of physically handicapped and disabled persons were regularly visited such

as Cheshire Home, Bal Bhawan, Harijan Sevak Sangh and Seva Kutir etc. Primary schools were adopted by some NSS units to give them overall face-lift and to give primary education a real universal touch. Health and Hygiene Programmes covering anti Malaria campaign and mass-immunization and health-check-up were very popular on campuses of the faculty of Medicines. Training of non-medical, NSS volunteers by the All India Institute of Medical Sciences. NSS Unit in the Community Health and Preventive Measures were good inter mixture of 'professionals' with 'non-professionals' besides its practical application.

## AIU's Sports Calendar

The Association of Indian Universities have announced the schedule of sports and games for the year 1980-81. The details are given as under :

### Games on Two-Zone Basis

**Basketball (W) :** S.Z. & I.Z.: Madras; I.Z. from 3rd November, 1980. N.Z.: Vacant.

**Kabaddi (M) :** N.Z. & I.Z.: Kurukshetra; S.Z.: Saurashtra; I.Z.: 27th October, 1980.

**Table Tennis (M&W) :** N.Z. & I.Z.: Jadavpur; S.Z.: Bombay; I.Z.: 30th September, 1980.

**Tennis (M) :** N.Z. & I.Z.: Rajasthan; S.Z.: Kakatiya; I.Z.: 14th January, 1981.

**Volleyball (W) :** N.Z. & I.Z.: Gurunank Dev; S.Z.: Kerala Agril; I.Z.: 27th November, 1980.

### Games on Four-Zone Basis

**Badminton (M & W) :** N.Z.: Guru Nanak Dev (W); E.Z. & I.Z.: Gorakhpur; S.Z.: Kerala; W.Z.: Marathwada; I.Z.: 29th August, 1980.

**Basketball (M) :** N.Z.: Panjab; E.Z.: Burdwan; S.Z.: Madurai Kamaraj; W.Z. & I.Z.: Vacant; I.Z.: 1st December, 1980.

**Cricket (M) :** N.Z.: Vacant; E.Z.: Bhagalpur; S.Z.: Vacant; W.Z. & I.Z.: Udaipur; I.Z.: 12th January, 1981.

**Football :** N.Z.: Garhwal; E.Z.

APS Rewa; S.Z. Andhra; W.Z. & I.Z., Vikram; I.Z.: 22nd October.

**Hockey (M) :** N.Z.: PAU; E.Z.: Sambalpur; S.Z.: Madurai Kamaraj; W.Z. & I.Z.: Indore; I.Z.: 8th January, 1981.

**Volleyball (M) :** N.Z.: Punjabi; E.Z. & I.Z.: BHU; S.Z.: Kerala; W.Z.: K.K.V., Dapoli; I.Z.: 1st November, 1980.

### Games on All-India Basis

**Athletics (M&W) :** Vacant; 28th December, 1980.

**Ball Badminton (M) :** Bangalore; 21st January, 1981.

**Ball Badminton (W) :** Bangalore; 21st January, 1981.

**Boxing :** HAU; 8th January, 1981.

**Chess :** Nagpur; 1st September, 1980.

**Cricket (W) :** Osmania; 20th November, 1980.

**Cycling :** Vacant; 9th January, 1981.

**Gymnastics (M&W) and Malakhamb :** Vacant; 15th December, 1980.

**Hockey (W) :** Kurukshetra; 10th December 1980.

**Handball (M&W) :** Jammu; 26th November, 1980.

**Kabaddi (W) :** Guru Nanak Dev; 22nd October, 1980.

**Kho Kho (M) :** Poona; 4th January, 1981.

## Personal

1. **Shri G. C. Chaturvedi, IAS,** has taken over as the Vice-Chancellor of Gorakhpur University.
2. **Dr. P.L. Malhotra** has been appointed Vice-Chancellor of Himachal Pradesh University.
3. **Dr. Shyam Nandan Kishore** has been appointed Vice-Chancellor of Bihar University.
4. **Shri K.R. Narayanan, Vice-Chancellor, Jawaharlal Nehru University, New Delhi,** has been appointed Indian Ambassador to the United States of America.

**Kho Kho (W) :** Poona; 4th January, 1981.

**Rowing :** Vacant; 7th January, 1981.

**Shooting (M & W) :** Vacant; 12th December, 1980.

**Squash Rackets :** Vacant; 2nd December, 1980.

**Swimming, Diving & Water Polo :** Calcutta; 1st October, 1980.

**Tennis (W) :** Vacant; 2nd January, 1981.

**Weight Lifting & Best Physique :** Vikram; 21st December, 1980.

**Wrestling :** Nagpur; 8th November, 1980.

N.Z.: North Zone

E.Z.: East Zone

S.Z.: South Zone

W.Z.: West Zone

I.Z.: Inter-Zonals

Vacant: Venue yet to be decided.

## PANJAB UNIVERSITY CHANDIGARH

Corrigendum to Advertisement No. 12/80  
(Published on page 491)

For the post of Editor in Hindi in the Department of Hindi, the desirable qualifications are as under:

1. Experience of editing work in Hindi manuscripts written in Gurmukhi script.
2. Sound knowledge of medieval Hindi Literature.
3. Knowledge of Sanskrit and Punjabi Languages.

## A list of Doctoral Theses Accepted by Indian Universities

### SOCIAL SCIENCES

#### Anthropology

1. Mehta, Shalina. Hindu-Muslim relationships in Delhi : A study of identity maintaining mechanism. University of Delhi.

#### Psychology

1. Indira, S.N. Mid life crisis : A psycho-social study of menopause. Bangalore University.

#### Sociology

1. Bimoria Rani, Marisetty. Female criminality in Andhra Pradesh. Andhra University.
2. Shah, Kalpana Ghanshyambhai. Voluntary organization and women's liberation : A case study of Akhil Hind Mahila Parishad. South Gujarat University.
3. Singh, Madhu. Social origins, educational attainments and occupational mobility among scheduled castes in Delhi. Jawaharlal Nehru University.

#### Political Science

1. Sinha, Pandey Gajendra Narain. Development of socialistic trends in the Indian National Congress, 1920-1947. Magadh University.
2. Tahmores, Kiumarsi. Foreign policy of Iran, 1962-1972. University of Poona.

#### Economics

1. Agarwal, Shama. A critical study of forest industries in Uttar Pradesh with special reference to Meerut and Garhwal region. Meerut University.
2. Bhatt, Pankaj Kedarnath. Growth of entrepreneurship in South Gujarat. South Gujarat University.
3. Mehta, Sudha. Swatantrata ke pashchat Madhya Pradesh ka udyogik vikas. University of Indore.
4. Sudama Singh. Cost benefit analysis of investment in fertilizer industry : A case study of Bhatinda Project. University of Rajasthan.

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2. Joseph, T.T. A study of some predictors of achievement in chemistry at the pre-degree level. University of Kerala.
3. Muenchana, P.M. Rangchai. A study of adjustment of the Thai students in Indian universities. University of Indore.
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1. Agarwal, Gyan Prakash. Government regulation of multinational corporations in India. University of Delhi.
2. Dharmawat, Basanti Lal. Mobilisation of rural deposits by commercial banks in Rajasthan. University of Udaipur.
3. Jacob, A.S.J. Economics of mechanization in the dry

areas with special reference to Ahmednagar District. University of Poona.

4. Khanna, Sri Ram. Export marketing of non-traditional items. University of Delhi.

5. Ram Prakash. Need for analysis of market segmentation for guiding marketing strategy of electrical cable (P.V.C.) Industry : A case study of electrical cable (P.V.C.) Industry in small scale sector at Ghaziabad. Meerut University.

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#### Literature

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1. Parasher, S.V. Certain aspects of the functions and form of Indian English : A sociolinguistic study. C.I.E.F.L., Hyderabad.
2. Pati, Madhusudan. Indian classical drama in the light of Western dramatic criticism. Sambalpur University.

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1. Jane Alam. Debistan-e-Wahshat ka tanquidi mutalah. University of Calcutta.

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1. Jamil, Mehammad Iqbal. Spatial industrial pattern in metropolitan areas: Experiences and planning prospects of Delhi. I.I.T., Kharagpur.

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3. Tripathi, Umesh Chandra. Gwalior Tahsil: A study in utilization of agricultural land resource. Meerut University.

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2. Lakshmi Chander. The Sharqi Kingdom of Jaunpur, 1394-1495 A.D.: A political and cultural history. University of Delhi.

3. Mishra, Dadhibaban. History of Orissa in the seventh century A.D. Sambalpur University.

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- (a) A first or high second class Master's degree of an Indian University or an equivalent qualification of a foreign University in the subject with bright academic record.
- (b) Either a research degree of doctoral standard or published research work of high standard in journals of repute.
- (c) About 10 years' experience of teaching Post-Graduate classes and/or research, and
- (d) Experience of guiding research at Doctoral level.

OR

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- (b) Either a research degree of doctoral standard or published research work of high standard in the subject concerned in journals of repute,
- (c) About five year's experience of teaching post-graduate classes and/or research; and
- (d) Competence to guide research.

Evidence of being engaged in making innovation in teaching methods and production of standard teaching material, will be an additional qualification.

#### Reader in Indian Theatre Essential

1. A first or high second class Master's degree (in any subject) of an Indian University or an equivalent qualification of a foreign University.
2. Experience of (a) acting  
or (b) directing  
or (c) producing  
or (d) play-writing.

#### Desirable

- (i) A research degree (any subject) of a doctoral standard or published research work of high standard in journals of repute.
- (ii) About five years' experience of teaching post-graduate classes at a University or College level and experience of guiding research.
- (iii) Graduate of the National School of Drama, New Delhi, or Diploma holder in the Indian Theatre from any of the recognised and well-known universities.
- (iv) Sound background in the Indian classical and Folk Theatrical Traditions and research in a field of Indian Theatre.
- (v) Production/Participation in Radio/T.V. Plays.

#### Desirable

#### Reader in Economics

Strong background in Mathematics and Statistics.

Specialisation in Econometrics, Mathematical Economics and/or in any important area of Economic Theory.

#### Reader in Hindi

- (a) Medieval Poetry
  - (b) Poetics/Linguistics/Modern Literature
  - (c) Knowledge of Sanskrit or English.
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- (a) Has done some written work in the language of the area on different aspects of the Language/Literature/Culture of the Area of Pakistan.
  - (b) Has working knowledge about the development of Society and Culture and also contemporary development in the concerned region.
  - (c) Capability of making depth study on inter-disciplinary basis.

#### Reader in Philosophy

Specialisation in Indian Philosophy or Logic.

#### Reader in Political Science

#### Specialisation

Either in International Politics or Political Theory or Comparative Politics or Indian Political Systems.

#### Reader in Sociology

Sociology of medicine/Sociology of art and literature/Sociology of development/Sociology of social inequality.

#### Reader in Tamil

- (a) Minimum of 7 years teaching experience upto Diploma Level to non-Tamils through English.
- (b) Innovation in the method of teaching Tamil to Non-Tamils.
- (c) Sound knowledge of Tamil Grammar.
- (d) Diploma in a Foreign Language and knowledge of Hindi/Punjabi.

#### Reader in Statistics

- (i) Field of Research Specialisation being Design of Experiments, Sampling Multivariate Analysis, Operation Research or Econometrics.
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#### 4. LECTURERS

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#### Qualifications

- (a) A Doctor's degree or research work of an equally high standard; and
- (b) Consistently good academic record with first or high second i.e. 55% marks or more (B in the seven point scale). Master's degree in a relevant subject or an equivalent degree of a foreign University. Having regard to the need for developing inter-disciplinary programmes the degree in (a) and (b) above may be in relevant subject. The consistently good academic record at Pre-Master's level would be interpreted as an average of 50% or above at the two examinations prior of Master's examination.
- (c) Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard, it may relax any of the qualifications prescribed in (b) above. Provided further that if a candidate possessing a Doctor's degree

or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M. Phil. or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research Laboratory/Organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

#### **Lecturers in Mass Communication Qualifications**

- (i) Consistently good academic record with a first or high second class Master's degree in the subject (Communication/Mass Communication/Journalism etc.) from an Indian University or an equivalent qualification from a foreign University.

**OR**

- (ii) A first or high second class Master's degree in Social Sciences/Sciences/Humanities with at least a second class Bachelor's degree or Diploma in Journalism from a recognised Indian University/Post-Graduate Diploma from a recognised National Institute.

#### **Desirable**

- (i) Teaching experience at college or University level.  
(ii) Work experience in any area of Mass Communication (Newspaper/Magazine, News Agency, Public Relations, Advertising Radio or T.V. Journalism etc.)

#### **Specialisation**

Research Methodology in Communication or Development/Rural Communication.

#### **Desirable**

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- (ii) An M. Phil. degree or a recognised degree beyond the Master's level or published work indicating the capacity of a candidate for independent research.

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(c) Specialization in one or more of the following areas : Sociology of Education, Sociology of Occupations and Professions, Population and Society.

#### **Desirable**

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2. Assistant Professor in German (temporary against leave vacancy for about two years)

#### **Qualifications : Essential**

- (a) Consistently good academic record with at least a high second class Master's degree in German or its equivalent qualification from an Indian/Foreign University; and  
(b) A doctor's degree or published work of an equally high standard.

#### **Desirable**

- (i) Graduation in Science or Technology; and  
(ii) At least ten years of technical translation experience from German into English with a reputed organisation.

Provided that in the case of Assistant Professors if the Selection Committees are of the view that the research work of a candidate as evident either from his thesis or from his pub-

lished work is of very high standard, it may relax any of the qualification prescribed in (a) above.

Provided further if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he/she has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Ph.D. degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

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(b) For post of lecturer in Mathematics—consistently good academic career with at least Second Class Master's or equivalent degree with

B+ grade or 55% marks and a doctorate degree or equivalent published work essential (In case no suitable candidate with doctorate degree or equivalent published work is available, candidate with good academic career may be appointed on the condition that he will obtain a doctorate degree or publish equivalent publications of high standard within five years otherwise no future increments will be granted until essential qualifications are obtained).

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REGISTRAR

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##### 1. PROFESSORS

(Grade : Rs. 1500-60-1800-100-2000-125/2-2500)

Bio-chemistry-1, Function Theory, Number Theory, Modular Forms, Algebra, Geometry and Related subjects-1 (Department of Mathematics), Analysis-1 (Centre of Advanced Study in Mathematics).

##### PROFESSORS/READERS -5

Centre of Advanced Study in Mathematics

Numerical Analysis-1; Function Theory, Number Theory, Modular Forms, Algebra, Geometry and Related subjects-4.

#### Qualifications : Essential

- A first or high second class Master's degree of an Indian University or an equivalent qualifications of a foreign University in the subject with bright academic record;
- Either a research degree of doctoral standard or published research work of high standard in journals of repute;
- About 10 years experience of teaching post-graduate classes and/or research; and
- Experience of guiding research at Doctoral level.

#### OR

An outstanding Scholar with es-



established reputation who has made significant contribution to knowledge in the discipline concerned.

## 2. READERS

(Grade : Rs. 1200-50-1300-60-1900)  
Geology-1 (Himalayan Geology),  
Pharmaceutical Sciences-2 (Pharmaceuticals-1) (Pharmaceutical Chemistry-1, temporary, leave vacancy),  
Microbiology-3 (Immunology-1, Microbiology-2, permanent-1, temporary, leave vacancy-1),  
Zoology-1 (temporary, but likely to be permanent),  
Chemistry-4 (Analytical Chemistry-1, Inorganic Chemistry-2, temporary, leave vacancy-1, temporary, but likely to be permanent-1, Physical Chemistry-1 temporary, leave vacancy),  
Bio-physics-1, Physics-4 temporary, leave vacancies.  
Centre of Advanced Study in Mathematics-1 (Analysis).

### Qualifications : Essential

- A first or high second class Master's degree of an Indian University or an equivalent qualifications of a foreign University in the relevant subject with bright academic record.
- Either a research degree of doctoral standard or published research work of high standard in the subject concerned in journals of repute.
- About five years experience of teaching post-graduate classes and/or research; and
- Competence to guide research.

Evidence of being engaged in making innovation in teaching methods and production of standard teaching material, will be an additional qualification.

### Essential/Desirable

**For the post of Reader in Microbiology (Immunology)**

M.Sc. in Microbiology/M.V.Sc., M.B.B.S., Ph.D., M.D. Microbiology with specialisation in Immunochimistry, Immunopathology or Clinical Microbiology-Immunology.

Research and Teaching experience in the subject of Immunology/Clinical Microbiology/Immunopathology.

**For the post of Reader in Microbiology**

M.Sc./M.V.Sc./M.B.B.S./Ph.D./M.D. in Microbiology.

Experience in the area of Molecular genetics, Fermentation technology or Microbial Toxicology.

**For the post of Reader in Bio-physics**

Specialisation in Cell Biology; Molecular Biology; Quantum Biology; Radiation Bio-physics.

## 3. LECTURERS

(Grade : Rs. 700-40-1100-50-1600)  
Bio-physics-1, Bio-chemistry-2, Pharmaceutical Sciences-2 (Pharmacognosy, temporary, leave vacancies),  
Geology-2 (temporary, leave vacancy-1),  
Chemistry-2, (Inorganic Chemistry-1 temporary, but likely to be permanent, Organic Chemistry-1 temporary, leave vacancy),  
Lecturer-cum-Microanalyst-1 (temporary leave vacancy) Zoology-2 (temporary, leave vacancies),  
Microbiology-3 (Virology or Protozoology-1, temporary, leave vacancies-2),  
Lecturer-cum-Curator-1.

### Qualifications

- A Doctor's degree or research work of an equally high standard, and
- Consistently good academic record with 1st or high second class i.e. 55% marks or more (B in the seven point scale). Master's degree in a relevant subject or an equivalent degree of a foreign University. Having regard to the need for developing inter-disciplinary programmes, a degree in (a) and (b) above may be in relevant subjects. The consistently good academic record at pre-Master's level would be interpreted as an average of 50% or above at the two examinations prior to Master's examination.

Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of a very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a doctor's degree or equivalent research work is not available or is not considered suitable a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for atleast two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment failing which he will not be able to earn future increments until he fulfils these requirements.

### Desirable

**For the Post of Lecturer in Bio-physics**  
Medical Physics/Animal Physiology/Neurobiology).

**For the posts of Lecturers in Bio-Chemistry**

Bio-Physical Chemistry/Molecular Biology/Plant Bio-chemistry/ Biochemical techniques including tissue culture/Metabolic regulation.

**For the posts of Lecturers in Geology**  
Mineralogy & Petrology or equivalent degree of a foreign University.

**Lecturer in Microbiology**

Virology, Protozoology, Tissue Culture or Molecular genetics.

**Lecturer-cum-Microanalyst**

### Essential

- A doctoral degree in the subject of Chemistry.
- Consistent good academic record with first or high second class Master degree in the subject of Chemistry.

### Desirable

Working knowledge of Micro-

analysis of Carbon, Hydrogen and Nitrogen.

**Lecturer-cum-Curator (Microbiology) Essential**

- M.D./Ph.D. in Microbiology.
- Specific experience in the maintenance of cultures and taxonomy and preservation of all types of micro-organisms.
- Teaching and research experience in the area of systematic bacteriology, biotechnology and or bio-engineering.

Candidates for the posts of Professors and Readers who do not possess a doctoral degree are required to submit 10 typed/cyclostyled copies of brief resume of their published work. 15% posts of Lecturers will be reserved for the members of the Scheduled Castes and 2% for the members of the Scheduled Tribes, but these will be filled up by others if no suitable Scheduled Castes/Scheduled Tribes applicant is available.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date will not be entertained.

Attested copies of Certificates in support of qualifications for Matriculation/School leaving, graduation as also post-graduate examinations be attached to the application.

Serving employees, may however, send their applications on the prescribed proforma, direct to the University. They may route another copy through their Departments. They will be allowed to present themselves for interview only on the production of a 'No Objection Certificate' from their employers. Canvassing in any form, will disqualify the candidate.

Application forms can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of Rs. 2/- or by making a written request to the Finance & Development Officer, Panjab University, Chandigarh, accompanied by self-addressed stamped envelope of 23 x 10 cms and a postal order for Rs 2/- drawn in favour of the Registrar, Panjab University, Chandigarh.

## INDIAN INSTITUTE OF TECHNOLOGY KANPUR

### Advertisement No. 22/80

Applications are invited to fill up two posts of Assistant Professor/Lecturer in the Department of Aeronautical Engineering in the Institute in the pay scales noted against each :

**Assistant Professor**— Rs. 1200-50-1300-60-1900

**Lecturer** —Rs. 700-40-1100-50-1600.

The Department is seeking individuals with ability and aptitude for teaching in undergraduate/post-graduate programmes, research and development in any of the areas of specialisations mentioned below. The Department has an energetic and young faculty and is actively involved in sponsored research and develop-

ment projects funded by Governmental agencies and industry.

#### Areas of Specialisation

1. Aircraft structural design/random vibration experimental stress analysis.
2. Gas turbines/aircraft propulsion.

#### Qualification and Experience

##### Assistant Professor

Doctorate degree with good academic record and atleast three years of professional experience outside the work for the degree.

##### OR

In special cases, M. Tech with good academic record and atleast seven years of industrial/research and development experience outside the work for the degree.

The candidate must have demonstrated ability in teaching and independent research work as envisaged by adequate number of research publications of good quality in journals of repute or developmental work of merit in any one of the aforesaid areas of specialisations.

##### Lecturer

Doctorate degree with good academic record and adequate research experience resulting in research papers of good quality.

##### OR

M. Tech. with good academic record and atleast three years of teaching research/industrial experience with good record outside the work done for degree.

The candidates must have ability for good teaching and independent research evidenced by adequate publications or developmental work in any one of the aforesaid areas of specialisations.

**For Both the Positions Basic Degree in Respective Branch of Engineering is Required.**

The Institute has well equipped laboratories and also Biosystems Laboratory, Laser Laboratory, besides central facilities. There is well established Computer Centre having DEC 10, IBM 1800, PDP-1 Systems with interactive graphic terminals and TDC-316, and a group of experienced programmers. The Institute has a well stocked library with more than 2,17,000 volumes and 1800 periodicals. The Central facilities included 2 MeV Van de Graaff accelerator, 4096 multi-channel analyser and other radiation detection equipment, liquid nitrogen and spectrometers, glass blowing shop, crystal growth facility, central instrumentation laboratory, precision machine shop, electron microscope besides a large workshop for fabrication of specialised research apparatus.

There is an Advanced Centre for Electronic Systems in the Institute attached to the Department of Electrical Engineering. The Centre carries out unclassified research and development work in the areas such as Communication, Radar, Signal and Image processing and instrumentation systems sponsored by Governmental agencies and industry. Besides, an advanced Centre for Materials Science

has been established recently at the Institute by the Government of India to undertake research in the frontiers of development on materials of national importance.

The Campus facilities include a Primary and Higher Secondary School, a Health Centre and a Shopping Centre.

The posts are permanent and carry retirement benefits in the shape of CPF Scheme or CPF-cum-Gratuity Scheme or GPF-cum-Pension-cum-Gratuity Scheme, as may be opted according to rules. The age of retirement is 60 years. During the first year, the appointment will be on probation. Besides pay, posts carry allowances according to the Institute rules, which at present correspond to those admissible to the Central Government employees stationed at Kanpur. Higher initial pay is admissible to exceptionally qualified and deserving candidates. Candidates called for interview will be paid second class railway fare from the place of duty to Kanpur and back by the shortest route.

In the category of Lecturer one post will be reserved for SC/ST candidate. In the event of non-availability of suitable SC/ST candidate, the reserved post would be treated as dereserved.

Applications from within India must be made on prescribed form obtainable free of charge from the Registrar of the Institute by sending a self-addressed unstamped envelope of 25 cm x 10 cm size. Application should be accompanied by a postal order for Rs. 7.50 (Re. 1.87 for SC/ST candidate).

Applicants who are employed in a Government/Semi-Government organisation or Institution should send their applications through proper channel, else they will be required to produce a 'No Objection Certificate' from their employers at the time of interview.

Applicants from abroad may apply on plain paper enclosing a complete biodata and names of three referees from whom reference letters may be obtained.

Applications should reach the Registrar, Indian Institute of Technology, I.I.T. Post Office, Kanpur-208016, U.P. (India) on or before September 20, 1980.

## UNIVERSITY OF NORTH BENGAL

Advt./19/R-80

dt. 11-8-80

Applications in prescribed forms are invited for the following posts, viz :

(a) Reader in Physics : (post one against leave vacancy but likely to continue) in the scale of pay of Rs 1200-50-1300-60-1900/- with allowances and other benefits as per University Rules (Specialisation in Theoretical Solid State Physics).

(b) Lecturers

(i) Geography and Applied Geography (post one) Specialisation in Pedology (preferably with science background)/Settlement Geography

(Rural)/Ecology and Environmental Conservation.

(ii) Political Science (posts two—one against leave vacancy)

(iii) Philosophy (post one)—Specialisation in Political or Social Philosophy and/or Phenomenology and Existentialism in the scale of Rs. 700-40-1000-50-1600/- with allowances and other benefits as per University Rules.

Minimum qualifications for posts A and B :—(a) A Doctor's degree or published research work of an equally high standard, and (b) consistently good academic record with 1st or high Second class (B in the seven point scale) Master's degree in the relevant subjects or an equivalent degree of a foreign University.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Additional requirements for post A : (a) evidence of being actively engaged in (i) research or (ii) innovation in teaching methods, or (iii) production of teaching materials; (b) above 5 years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position. The qualifications may be relaxed as per directives of the University Grants Commission.

Choice of Selection Committee may not necessarily be confined to those who apply formally. No applications except in prescribed application forms may be considered.

Prescribed application forms may be obtained from the office of the Registrar personally on payment of Re. 1/- in cash at the University cash counter or by sending a self addressed stamped Rs. 1.20 (one rupee and twenty paise envelope of 25 cm x 13 cm with crossed Indian Postal Order of Re. 1/- in favour of the University of North Bengal. Filled in application forms (6 six) copies must reach the office of the Registrar, P.O. North Bengal University, Dt. Darjeeling Pin: 734430 within 21 days from the date of publication of this notification.

REGISTRAR



## UNIVERSITY OF ROORKEE ROORKEE (U.P.)

Corrigendum to Advertisement  
No. EST (A)/16/7/80 dated 1-7-1980.

### 1. Earthquake Engineering Department

(a) The Specialization for the post of Professor be read as "Soil and Rock Dynamics and Foundation under Seismic Conditions" instead of Soil Dynamics.

(b) The Specialization for the post of Reader be read as "Engineering Seismology and Tectonics" instead of Seismology.

### 2. Architecture and Planning Department

The qualifications for the post of Reader be read as under instead of the qualifications already advertised :

(a) **READER IN ECOLOGY—One (R)**  
Qualifications: Essential

(i) Master's Degree/or equivalent qualification with good academic record.

(ii) Seven years experience of teaching/research/profession in the appropriate field with at least two years in teaching/research.

(b) **READER—One(R) + Two(TLR)**  
Qualifications: Essential

(i) A Master's Degree or equivalent qualification with any one of the following specializations :—  
Architecture, Building, Urban Design, Tropical Architecture, Architecture Engineering, Landscape Architecture, Housing, Environmental Planning and Design and Town and Country Planning.

(ii) Seven years experience of teaching/research/profession in appropriate field with at least two years in teaching/research.

O.N. Chaturvedi  
REGISTRAR

## INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY

Advertisement No. A/4/80

Applications are invited for the following posts in the Centre of Studies in Resources Engineering (CSRE), IIT-Bombay. The posts are tenable for a period of 5 years in the first instance but likely to continue. The staff appointed in the CSRE will be entitled to the same service benefits as are applicable to the permanent members of the staff of the Institute. Applicants should give an account of their professional record and list of research publications etc. In case of candidates of exceptional and proven ability, there may be flexibility regarding area of specialisation and formal educational qualifications. If a candidate is not found suitable for the post at (i) below, he may be considered for the position of Sr. Project Engineer/Scientist in the scale of Rs. 1500-60-1800-100-2000.

(1) **CHIEF PROJECT ENGINEER/SCIENTIST REMOTE SENSING**  
(6 posts)

Scale : Rs. 2000-125/2-2500

(2) **PROJECT ENGINEER/SCIENTIST REMOTE SENSING**  
(5 posts)

Scale : Rs. 1100-1600

(3) **ASSISTANT PROJECT ENGINEER/SCIENTIST REMOTE SENSING** (6 posts)

Scale : Rs. 700-1300

### Area of Specialisation and Qualifications

For the 6 posts of Chief Project Engineer/Scientist are given below at (a) to (f).

(a) **Application to Computer Image Data Analysis**

Ph.D. in Electrical Engineering or Computer Science, 12 years experience in computer image processing, remote sensing including Sensor Technology and development of data bank. Experience in the analysis of satellite data and use of CCTs will be considered additional qualification.

(b) **Application to Mineral Resources and Earth Science Problems**

Ph.D. in Earth Sciences/Geology/Geophysics. 12 years experience in using remote sensing, imagery and CCT interpretation using computer techniques including aerial photointerpretation.

(c) **Application to Water Resources Problems**

Ph.D. in Hydraulics or Water Resources. 12 years experience in Remote Sensing as applied to Water Resources Problems including Systems analysis.

(d) **Application to Geotechnical Engineering and Land Use Problems**

Ph.D. in Geotechnical Engineering. 12 years experience in the use of remote sensing, photointerpretation, computerised data processing and image analysis to problems in river valley projects, communication systems, coastal and urban developments.

(e) **Application to Photogrammetry and Geodesy**

Ph.D. in Photogrammetry and Geodesy. 12 years experience in the application of remote sensing, imagery analysis using computer in the field of Photogrammetry and Geodesy.

(f) **Incharge of Remote Sensing Application Training Programme**

Ph.D. in any of the fields mentioned above at (a) to (e). 15

years or more experience in application of remote sensing to various engineering and/or Science problems. Experience in teaching/research/development/training programmes necessary. The person has to develop training programme on the lines of the one organised in Water Resources Development Training Centre, Roorkee. He has to interact with agencies like ISRO, SAC, NRSA etc., for organising training programmes/workshops/conferences jointly with other organisations.

For the posts at (2) for the **PROJECT ENGINEER / SCIENTIST**, candidates having the Masters degree in the appropriate area of specialisation of engineering/science mentioned above at (a) to (c) and (e) with 5 years experience in the relevant area, may be considered. Candidates with a Master's degree in Metallurgical Engineering with 5 years experience in the area of Mineral Beneficiation will also be considered. Ph.D. is preferred.

For the posts at (3) for **ASSISTANT PROJECT ENGINEER/SCIENTIST**, candidates having the Master's degree in the appropriate area of specialisation mentioned above at (a) to (c) and (e) with atleast 3 years experience in the relevant areas may be considered. In addition, candidates having M.Sc. Mathematics and Statistics with 3 years experience in Digital image processing of remotely sensed data, and candidates having M.Sc. (Agri.) in Soil Sciences and Agricultural Chemistry with 3 years experience in application of remote sensing, imagery analysis using computer may also be considered.

The posts carry allowances such as DA, CCA, HRA as per the rules of the Institute which at present correspond to those admissible to Central Government employees stationed in Bombay. Application should be made on a plain paper, neatly typed, and should reach the Registrar, IIT Powai, Bombay-400076, on or before 20th October 1980. Applicants should attach a crossed postal order for Rs. 7.50 (Re. 1.88 for SC/ST candidates) payable to the Registrar, IIT-Bombay.

## JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HUMAYUN NAGAR, HYDERABAD-500028 ANDHRA PRADESH

### NOTIFICATION

Applications are invited for the post of Lecturers in the Constituent Colleges of J.N.T. University, Hyderabad in the following faculties :

S.No.	Name of the post	No. of vacancies
1.	Lecturer in Civil Engineering	6
2.	Lecturer in Electrical Engineering	1
3.	Lecturer in Mechanical Engineering	4
4.	Lecturer in Electronics and Communication Engineering	2
5.	Lecturer in Mathematics	1
6.	Lecturer in Physics	1
7.	Lecturer in Humanities	1

Note : 2 posts in Civil Engineering and 1 post in Mechanical Engineering are leave vacancies. Hence appointment to these posts would be made on temporary basis only, and are liable to be terminated on return of the staff members from leave.

(Continued on page 485)



# NORTH-EASTERN HILL UNIVERSITY

LOWER LACHAUMIERE, SHILLONG

No. Advt./P-6/80-

Dated the 21st August, 1980.

Applications are invited for the following posts in the North-Eastern Hill University.

1. Principal Scientific Officer	(For Shillong)	1 (One)	Rs. 1600-60-1800-100-2000-125/2-2500/-
2. Reader in Commerce	(For Kohima Campus)	1 (One)	Rs. 1200-50-1300-60-1900/-
3. Reader in English	(For Mizoram Campus)	1 (One)	-do-
4. Reader in Education	(For Kohima Campus)	1 (One)	-do-
5. Lecturer in Commerce	(For Kohima Campus)	2 (Two)	Rs. 700-40-1100-50-1600/-
6. Lecturer in Botany	(For College of Agriculture, Nagaland, Meoziophema)	1 (One)	-do-
7. Lecturer in Education	(For Kohima Campus)	1 (One)	-do-
8. Lecturer in English	(For Pachhunga University College Aizawl).	1 (One)	-do-

## Essential Qualifications

### Sl. No. 1

B.E. Mechanical engineering with 10 years of experience of maintaining service workshop in reputed multi-disciplinary organization.

OR

M. Tech. in Instrumentation Technology with 5 years of experience in service oriented multi-disciplinary workshop.

### Sl. No. 2 to 4 :

- Good academic record with a doctoral degree or equivalent published work.
- Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.
- Ability to interact with other disciplines.
- About five year's experience of teaching and/or research provided that at least three of these years were as Lecturer, or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

### Sl. No. 5 to 8

- A doctoral's degree or research work of a high standard, and
- Consistently good academic record with 1st or high 2nd Class (B' in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign University. Having regard to the need for developing inter-disciplinary programme, the degree in (a) and (b) above may be in relevant subjects.

## Desirable

### Sl. No. 1

**Job Requirement :** The workshop is equipped with H.M.T. pre-selector universal lathe Model A 24. up-1500

speed range 32-140 rpm; IMT cylindrical grinding machine; universal tool and cutter grinder model GTC-28, and other necessary tools required for mechanical workshop. The incumbent will be required to organise the workshop and undertake to design, fabricate, repair and extend service facilities to all the academic and administrative departments of the University. He will interact with the faculty members of the science departments in designing and fabricating work of scientific instruments and components.

The workshop will have an electronic wing furnished with test equipment and there will be an electronic engineer working under P.S.O. to extend repair and service to facilitate all the electronic instruments installed in different departments.

The graphic section of the general workshop includes the job of preparing graphs and traces of scientific materials and providing their ammonia prints.

The glass blowing laboratory is currently under Chemistry Department and the job requirement of various science departments will be co-ordinated by P.S.O.

The candidate preferably should have a working knowledge of Khasi language but not compulsory.

### Sl. No. 5

Second Post—M.A. in Economics/ M. Com with knowledge of Economics.

### Sl. No. 6

Plant Breeding and Genetics—A Doctorate in Plant Breeding, Agricultural Botany or Genetics and Plant Breeding or published work of a high standard in the subject.

Candidates appointed should be prepared to serve anywhere within the

jurisdiction of the North-Eastern Hill University.

Applications on plain paper indicating name, present address, age, qualification in detail, etc. etc., should reach the undersigned on or before **20th September, 1980**, together with an Indian Postal Order for Rs. 5/- (Rupees Five) Rs. 2.50 (Rupee two and paise fifty) in case of Scheduled Tribes/ Scheduled Caste payable to the "North-Eastern Hill University" Shillong as application fee.

## NOTE

- Persons in service should submit their applications through their employers.
- Candidates called for interview will have to appear before the Selection Committee at the Office of the North-Eastern Hill University or at any place specified. A return first class railway fare for the post of S. No. 1 and Second Class railway fare to the rest of the posts shall be paid by the University from the place of start to the place of interview and back (The rate of travel allowances permitted by the Central Universities will apply).
- All appointments will be subject to a period of probation.
- These posts are open to all citizens of India who satisfy the required qualifications but some preference may be given to equally qualified ST/SC Candidates.
- The University reserves the right to make appointment under Statute 21 of Act, if necessary.

M.R. Mawlong  
REGISTRAR

## MAHARASHTRA ASSOCIATION FOR THE CULTIVATION OF SCIENCE

M.A.C.S RESEARCH INSTITUTE  
LAW COLLEGE ROAD  
PUNE-411004

Applications are invited for the post of Director at the Maharashtra Association for the Cultivation of Science, Pune 4.

## Qualifications

The incumbent should primarily be a bioscientist who is respected for his work and who has adequate administrative experience of running an Institute.

## Pay Scale

Rs. 2000-125/2-2500 (existing) Plus allowances. The higher pay scale and salary will however be negotiable and will be subject to sanction by the Department of Science & Technology Govt. of India, New Delhi.

## Age

55 years and above.

Interested scientists will please furnish their applications with biodata and list of publications etc. so as to reach the Chairman, Executive Committee, M.A.C.S. Pune-4 by **30th September, 1980**.

### JADAVPUR UNIVERSITY CALCUTTA-700032.

Employment Notification No. A2/C/9/80  
Dated : August 8, 1980.

The University invites application in the prescribed form for the following posts :

1. **Professor : Mechanical Engineering—**  
Two posts
2. **Reader : Mechanical Engineering—**  
Three posts

#### Qualifications for Professor Posts Essential

- (i) Research degree of Doctorate standard or published papers of an equally high standard.
- (ii) Consistently good academic record with at least high Second Class Master's degree in Mechanical Engineering of Indian Universities or equivalent.
- (iii) Ten Years' teaching/industrial/research experience of which at least five years must be in teaching at post-graduate level.
- (iv) Proven ability to guide research.

#### Qualifications for Reader Posts Essential

- (i) At least high second class Master's degree in Mechanical Engineering of Indian Universities or equivalent with consistently good academic record.
- (ii) Five years' research/industrial/teaching experience of which at least three years must be in teaching at an Engineering degree College/University.

#### Explanatory Note in Respect of All Kinds of Posts

Candidates should either have an average of 55% of the two examinations prior to Master's degree (irrespective of the marks obtained in any of the two examinations) or 50% in each of the two examinations separately.

#### Desirable for Professor Posts

- (i) Experience of organising laboratories
- (ii) Corporate Membership in recognised professional bodies.

#### Desirable for Reader Posts

- (i) Research degree or published papers of high standard.
- (ii) Corporate Membership in recognised professional bodies.
- (iii) Ability to guide research.

#### Specialisation for Professor Posts

- (i) Machine Design—One post.
- (ii) Open to all specialisations in Mechanical Engineering subjects—one post.

#### Specialisation for Reader Posts

- (i) Production Engineering—One post
- (ii) Heat Power Engineering—One post
- (iii) Open to all specialisations in Mechanical Engineering subjects—One post.

#### Scales of Pay

**Professor :** Rs. 1500-60-1800-100-2000-125/2-2500.

**Reader :** Rs. 1200-50-1360-60-1900/-.

Those who have applied against the previous advertisement need not

apply again. However they may supply additional information if they so desire.

Last date of receiving application is 6-9-1980.

Application forms are obtainable from the University Office during working hours on payment of Rs. 2/- or by post on payment of Rs. 2/- + Re. 1/- as postal charges. No travelling allowance is admissible to candi-

dates called for interview. Higher initial salary may be given to really deserving candidates. Those who are in employment should submit their application through proper channel. Choice of the Appointment Board will not necessarily be confined to applicants only. Canvassing in any form will disqualify a candidate.

REGISTRAR (Off.)

### ANDHRA PRADESH AGRICULTURAL UNIVERSITY ADMINISTRATIVE OFFICE "RAJENDRANAGAR" HYDERABAD-500030 Advertisement No. 6/80, Dated : 4-8-1980

Applications are invited for the posts of :

- |                                |  |
|--------------------------------|--|
| 1. ASSISTANT PROFESSORS        | Scale of pay<br>Rs. 700-40-1100-50-1600. |
| 2. ASSISTANT RESEARCH OFFICERS |  |
| 3. SUBJECT MATTER SPECIALISTS  |  |

Application forms duly filled in should be sent with Registration fee of Rs. 5/- so as to reach the Registrar, A.P. Agricultural University, Rajendranagar, Hyderabad-500030 on or before 15-9-1980.

Subject	No. of posts	Qualifications
<b>FACULTY OF AGRICULTURE</b>		
1. Agronomy	7	<b>Essential</b> (i) A post-graduate degree in the subject concerned. (ii) Three years experience in teaching and/or Research and/or Extension in the subject concerned.  <b>Note</b> Ph.D. degree holders in the subject are exempted from the three years experience in Research, Teaching and Extension.  <b>Desirable :</b> (i) Ph.D. degree in the subject concerned. (ii) Other things being equal preference shall be given to a person with basic professional degree in the faculty concerned.
2. Agril. Chemistry	4	
3. Entomology	4	
4. Plant Breeding	14	
5. Plant Pathology	4	
6. Horticulture	4	
7. Plant Physiology	1	
8. Statistics	2	
9. Agril. Economics	1	
<b>FACULTY OF VETERINARY SCIENCE :</b>		
1. Asst. Research Officer (Nutritionist)	1	<b>Desirable :</b> (i) Ph.D. degree in the subject concerned. (ii) Other things being equal preference shall be given to a person with basic professional degree in the faculty concerned.
2. Asst. Research Officer (Physiology)	1	
3. Asst. Research Officer (Bio-Chemistry)	1	
4. Medicine (Clinical Registrar)	1	
5. Dairy Science (Superintendent)	1	
6. Gynaecology (Asstt. Research Officer)	1	
<b>POSTS IN AGRIL ENGINEERING IN THE FACULTY OF AGRIL.</b>		
1. Subject Matter Specialists	2	A good Master's degree in appropriate field with two years
2. Asst. Professor	1	

1. The University reserves the right not to fill up the advertised posts.
2. Applicants should appear for interview at their own cost.
3. Selected candidates are liable for transfer to any equivalent posts in teaching, research and extension in the University.
4. Selected candidates will be governed by Andhra Pradesh Agricultural University conditions of service of teachers and other employees.
5. Application forms can be had from the Registrar, Andhra Pradesh Agricultural University, Administrative Office, Rajendranagar, Hyderabad-500030 on payment of Rs. 2/- in cash or through postal order uncrossed.

T. Narayan Reddy  
REGISTRAR